State of Utah

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Office of the Governor
PUBLIC LANDS POLICY COORDINATION

JOHN HARJA
Director

November 30, 2007

Selma Sierra
Director, Utah State Office
Bureau of Land Management
440 West 200 South, Suite 500
Salt Lake City, Utah 84101

SUBJECT: Moab Field Office - Draft Resource Management Plan and Draft Environmental Impact Statement

Dear Director Sierra:

The State of Utah appreciates the opportunity to work with the Bureau of Land Management as a formal cooperating agency in the preparation of Resource Management Plans and other environmental documentation throughout the state. The state also appreciates the BLM extending similar status to local governmental entities which have a stake in the planning area under consideration. The state firmly believes that cooperative discussions among the various landowners and regulatory agencies will lead to the best possible final product.

The state, local governments, and BLM have invested considerable time and effort working together in these planning efforts. The state's expectation is that this process will lead to a well-reasoned and well-formulated plan. An important part of this process will be ensuring that the plan is consistent with state and local plans, policies, and laws, to the maximum extent possible. The plan will then, in turn, represent a reasonable compromise on the various facets of multiple-use management.

The Public Lands Policy Coordination Office (PLPCO) is tasked by state law to ensure that the positions of the state and its political subdivisions are considered in the development of public lands policy. To this end, PLPCO collected, reviewed and coordinated input from various state agencies, shared this information with local government, sought local government response, and prepared this response on behalf of the State. While the state considered local government during preparation of its comments, the BLM should also give full consideration to the comments submitted directly by local governments.

Initially, the state wishes to recognize and applaud the partnership it has with the BLM on many issues. The restoration and watershed improvement work funded and implemented through the Utah Partners for Conservation and Development is a good example of the

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achievements possible when agencies work for the improved health of the lands and resources. We are optimistic that similar efforts regarding cultural resources and air quality will be as successful.

The comments and concerns raised below are offered in the spirit of cooperation through disclosure, analysis and adherence to the provisions of law, regulation, good governance and common sense. The state recognizes planning as a dynamic process that will continue into the future, and reserves the right to supplement these comments as necessary. The state looks forward to resolution of these issues as a cooperating agency through the preparation of the Final EIS and Final Resource Management Plan.

Economic Studies:

The state, through PLPCO, contracted with Utah State University and the University of Utah to complete a number of economic and social-attitude studies regarding the use of and value attributed to public land resources by Utah residents. These studies assess: general attitudes of the citizens toward the public lands, off-highway vehicle use on public lands, grazing on public lands, potential Wild and Scenic River designation, and economic impacts of oil and gas exploration and production. Below are short summaries of a number of these studies which are works in progress. We will provide copies of these studies as they are completed and ask that you consider this information as you prepare the Final RMP and Final EIS.

A statewide survey of the residents of Utah, the *Utah Public Lands Study*, was conducted in the summer of 2007 by Utah State University. One focus of the survey questionnaire involved assessing various ways in which residents engage in economic activities that are linked to public land resources. Other major purposes involved assessing attitudes toward public lands as part of the resident's quality of life and sense of community, and assessing attitudes and preferences regarding public land management. A preliminary and partial tabulation of results for Grand and San Juan Counties is attached as "Attachment B." A more complete tabulation and analysis of results for these counties, as well as statewide results, will be submitted to BLM as they are completed.

The preliminary results of the *Utah Recreational Off-Highway Vehicle Use Study* conducted by Utah State University shows OHV use becoming increasingly popular, but the number of trips taken per year declining. Recreational activities that OHV users participate in are diverse, including both passive (sightseeing and photography) and active (camping and hiking). Rider motivation includes stress relief and nature appreciation, along with achievement, stimulation, independence and socialization with others. The study also shows economic impacts broken out by direct and total impact to both San Juan and Grand counties as well as by regional gross output, employment, household income, and value-added income. A "Random Utility Model" will be used to measure change in the allocation of trips across counties, measure change in the total number of trips taken by Utah OHV users, measure change in economic value accruing to OHV users and generate trip-distribution information for use in economic impact modeling. Full results will be made available upon completion of the study.

The Utah State University study, *Dependency on and Alternatives to Public Land Grazing by Livestock Operators in Utah*, preliminarily indicates a drop in permitted AUMs of grazing in the Moab district from 1981 through 1997. The highest number of AUMs in the Moab district, according to BLM data, was 251,815 in 1988, which dropped to 139,339 by 1997. The further results of the study, including the results of the survey of dependency on the public range, will be made available upon completion.

The Bureau of Economic and Business Research at the University of Utah has completed an economic impact study of the oil and gas exploration and production industry in the Uinta Basin titled *The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry: Phase I - the Uinta Basin*. This study will be followed by similar studies for the Price, San Juan and Richfield areas. These further studies will be made available to the BLM as soon as they are completed. The Phase I study shows that rapidly rising energy prices and the corresponding rise in oil and gas activity are causing an economic boom in the Uinta Basin. During 2006, the oil and gas exploration and production industry was directly responsible for 19.9 percent of employment and 34.8 percent of total wages in the Uinta Basin, while those figures rose to 49.1 percent of the employment and 60 percent of the wages in the Basin when the indirect (multiplier) effects are considered. The industry also has a sizeable fiscal impact on local governments in the Uinta Basin. Property taxes paid on producing oil and gas wells were $18.2 million in 2006 and accounted for 38.7 percent of all property taxes paid in the two counties. Though this particular study does not coincide with the Moab Field Office area exactly, the Field Office should consider the potentially large economic effects the industry might have as part of the balancing of resources in the final Plan. The Phase I study is attached as "Attachment C."

Wild and Scenic River Designation Studies:

The state acknowledges the requirement for the Moab Field Office to conduct Wild and Scenic Rivers studies as part of the Resource Management Plan revision process. Utah law, however, sets forth certain prerequisites for state support of a Wild and Scenic designation, and directs that the BLM ensure appropriate information is developed, disclosed, and used as part of the WSR evaluation process. *See* Utah Code §63-38d-401(8)(a) thru (b). The law indicates, among other things, that river segments proposed for inclusion in the NWSRS should contain water at all times and possess an outstandingly remarkable value which is significant within a physiographic regional context, and that studies of the effects of designation on uses within the river corridor, as well as upstream and downstream from the corridor, are analyzed and disclosed.

In an effort to understand the nature and extent of the effects of wild and scenic river designations, Utah State University conducted a Wild and Scenic River designation study. The study was designed as: (1) a literature review and analysis of the recreation impacts of Wild and Scenic designation, and (2) a literature review and case study analyzing the impact of designation on non-recreational aspects of the economies of local communities and users. Preliminary results indicate (1) a lack of any "before and after" studies concerning the effects of designation of a wild and scenic river segment, (2) anecdotal indications of a designation effect as reported by researchers, but no statistical evidence, (3) the single study which statistically examined a

designation effect found no evidence of an effect, and (4) various effects on uses of private lands and public land uses within and as a result of the designation. Complete findings will be available very soon.

The state is also concerned about suitability findings for those streams where there are significant water diversions upstream of the subject reach, most of which are for irrigation. This is particularly true for the Green River drainages. While federal reserved water rights are not asserted prior to designation, those stream reaches found suitable are managed as if they were designated. This "manage-as-if-designated" approach has the unfortunate and inaccurate potential to cause managers to believe a *de facto* federal reserved water right exists for those reaches, and thereby impact the future management and utilization of valid existing water rights above the reaches. The state believes that this suitability determination phase is the proper time to begin negotiations concerning the extent of any future federal reserved water rights. As a minimum, the State Engineer requests the BLM to catalog all valid, existing water rights which may be affected by designation as part of the *Affected Environment* or *Socio-Economic* chapter of each document.

Grazing, Wildlife and Watersheds:

The state supports, as a matter of policy, well-planned and managed livestock grazing, and considers the same as an important landscape-scale tool for creating and maintaining healthy watersheds and resources, including healthy habitat for wildlife. The state encourages the BLM to adopt the principle that functionality of the watershed underlies all the resource values of the planning area. The state and BLM are, of course, partners in a major effort to improve the health and functionality of watersheds through the multi-agency efforts of the Utah Partnership for Conservation and Development. To date, many thousands of acres of range and watershed lands have been reclaimed and restored through active efforts and properly managed grazing. Other oft-cited examples of the use and value of prescriptive grazing and associated wildlife management are the privately-held Deseret Land and Livestock ranch, and the Hardware Ranch managed by the state's Division of Wildlife Resources. Flexibility of management practices has been the key to success of these two operations.

Because of the value of grazing, state policy discourages permanent closure of grazing allotments. Permanent closure precludes using grazing as a management tool for improving watershed health, wildlife habitat, and the economic benefits of livestock production. The state, among other purposes, is supportive of the use of livestock in a prescriptive manner, that is, use of livestock in a "tactical" manner to accelerate progress toward improved rangeland health and the reduction of catastrophic fire. The state strongly suggests that BLM support flexibility within the management provisions for livestock grazing time (duration) and timing (season of use) in the Final Plan. Through the Utah Partners for Conservation and Development, the Watershed Restoration Initiative, and the Utah Grazing Improvement Program, the state stands ready as a partner to work with the BLM to rehabilitate resources and improve grazing practices to benefit watersheds, wildlife and livestock. Retaining flexibility in the season of use will greatly aid in the control of undesirable plant species, and in the control of the fuels responsible for catastrophic fire. In addition, the state encourages the BLM to cooperate with the state and conservation organizations to actively monitor and record grazing use data, wildlife populations

and range conditions. The Final RMP should contain and rely on a robust monitoring program so that resource managers and users can communicate, learn, assign responsibilities, and use adaptive management to meet land health objectives.

Nonetheless, the state does support continuation of the existing allotment decisions for the Bogart, Cottonwood, and Diamond allotments in the Moab Field Office. These allotments were reallocated to wildlife as a result of the purchase of the Cunningham Ranch and all associated grazing rights, and the Moab RMP was amended to that end. To offset the reduction in Animal Unit Months for livestock, grazing was increased on the nearby Cisco Allotment. This trade in use patterns was an early effort to improve the riparian zone and watershed conditions within the retired allotments, as well as to alleviate wildlife depredation on private property. At the time, a partial retirement within each of these allotments and selective use of grazing as a range management tool, though suggested as an option by the state, was rejected by the Moab FO in favor of the total reallocation now in effect. The base property associated with the Pear Park allotment was also acquired by conservation organizations and the grazing was reallocated under similar circumstances.

In reliance on these decisions, and the 1994 Memorandum of Agreement among the BLM, the Division of Wildlife Resources, and the Nature Conservancy, the parties have made a substantial financial investment in managing this area for wildlife. Watershed conditions, the quality of the riparian areas and forage resources have improved. For the BLM to permit significant amounts of domestic livestock in these allotments would challenge the trust among the BLM, the state, its Division of Wildlife Resources and other conservation partners active in the Book Cliffs.

If, however, the BLM decides to allow grazing within these allotments, the state would like to work with BLM to assure that the use and timing of grazing is beneficial to wildlife. Ethics, intent, and trust would dictate that, if grazing were to be allowed at some level, the grazing preference must be given to those organizations which purchased the base property. These groups should also be involved in the development of grazing management plans for the allotments. Finally, sheep use should not be allowed because of serious concerns about transmission of disease.

On a related note, the state believes the BLM should only employ the term "critical habitat" when referring to the legal habitat designations for endangered and threatened species under the Endangered Species Act. The state requests that the BLM use the "crucial habitat" designations mapped by the Division of Wildlife Resources solely as descriptive wildlife habitat designations, not as automatic exclusion zones for other multiple uses. The state also requests that these designations not be altered from alternative to alternative, as the area is defined based on DWR's wildlife inventories and may be refined or altered by the state as conditions require.

Inventory and Proposed Management of Areas with Wilderness Characteristics:

The State of Utah has reviewed BLM's inventory of and proposed management for lands identified as possessing wilderness characteristics. The state questions, and does not believe that

BLM has the authority to create a category of management based solely on the characteristics of wilderness. The characteristics of wilderness, or their constituent elements, were first recognized by the Wilderness Act of 1964 and passed to the BLM within the provisions of Section 603 of the Federal Land Policy and Management Act of 1976. The authority within Section 603 has now expired by its own terms. The state recognizes that recent court decisions have affirmed BLM's authority to inventory for wilderness characteristics, and have required the BLM to consider new information about these characteristics in its documents prepared under the National Environmental Policy Act. These decisions do not, however, consider or affect the BLM's statutory authority for management policies, provisions or categories on the BLM lands. The state cautions BLM against an overly broad reading of these decisions. Management authority must be derived solely from the specific provisions of the Federal Land Policy and Management Act, (*e.g.* Areas of Critical Environmental Concern) or other specific federal legislation, and it is incumbent upon the BLM to carefully define its detailed legal rationale and reasoning for its proposed management policies, provisions and categories.

The State of Utah is committed to outdoor recreation, including primitive and non-motorized recreation, as an activity of great interest to the residents of Utah, and as an economic driver. The state supports retention of appropriate areas in their primitive, semi-primitive or rural, after due consideration and in compliance with legal requirements. The state looks forward to working with the BLM to find appropriate management prescriptions and structures to protect primitive, semi-primitive and rural areas for the use of its citizens, and those of the nation.

Thus, the state asks BLM to provide a detailed explanation of the rationale and authority for management of lands solely because of wilderness characteristics, and why such management does not circumvent the provisions of the statutorily required wilderness review process. *See* 43 USC § 1701(l) and Utah Code § 63-38d-401(6)(b). As the Moab Field Office moves forward, the state encourages BLM to take great care to read the court decisions carefully, and to comply with the Settlement Agreement resolving *Utah v. Norton*, No. 2:96CV0870 B (D. Utah Sept. 9, 2005). In particular, BLM should not exercise its authority under section 202 of FLPMA in a manner that establishes, manages or otherwise treats public lands as wilderness unless those lands were congressionally designated as wilderness or were previously designated as wilderness study areas pursuant to section 603 of FLPMA. In addition to these cautions, the state requests that, in weighing management options for the Final RMP, BLM give strong consideration to recommendations submitted by local government and not manage lands to protect wilderness character where such management would, in the opinion of local governments, be contrary to the interests of local residents. BLM should also consider the existence of inholdings and valid existing rights, including school trust lands, and not manage areas for protection of wilderness characteristics where development of inholdings or valid existing rights may compromise management of the area.

Utah's Trust Lands and Land Tenure Adjustment:

Utah's School and Institutional Trust Lands Administration (SITLA) is an independent state agency responsible for management of lands granted to the State of Utah by the Utah Enabling Act of July 17, 1894, 28 Stat. 109. These lands were granted to Utah for the financial

support of its public schools and state institutions. The United States Supreme Court has referred to this Enabling Act land grant as a "solemn compact" between the United States and the State of Utah obligating the United States to take into consideration the purposes of the grant when managing federal lands.

The state is obligated by both the Utah Enabling Act and the Utah Constitution to act as a trustee in managing school trust lands. Among the fiduciary duties imposed upon SITLA is the duty to manage trust lands in the most prudent and profitable manner possible, and not for any purpose inconsistent with the best interest of the trust beneficiaries. Revenues from school trust lands are deposited in the Permanent School Fund, a permanent endowment for public education. Interest and dividends from the Permanent School Fund are distributed to individual public schools statewide annually to supplement critical academic needs.

SITLA manages an estimated 340,221 acres of state trust lands within the Moab Planning Area (MPA), representing approximately 12.3 percent of all lands in the MPA. *See* Table 1.1, Page 1-3. Most of these state trust lands are comprised of numbered sections 2, 16, 32 and 36 in each township, representing the grant of in-place school sections made by the Utah Enabling Act. The significance of this "checkerboard" pattern of land ownership is that, because most trust lands are surrounded by BLM lands, planning decisions made by BLM with respect to rights-of-way, withdrawals from mineral leasing, special designations (*e.g.* ACECs, management for wilderness characteristics) and other determinations impact the state trust lands that are surrounded by BLM lands. For this reason, the state strongly disagrees with BLM's analytical assumption at page 4-3 of the Draft RMP/EIS that non-BLM lands would suffer minimally direct impacts from RMP decisions. BLM's decisions on how to manage its lands directly affect the state's ability to manage trust lands to provide revenue for public schools and other beneficiary institutions.

This is an issue of significant impact to Utah's school trust. Lands within the MPA make up approximately 10 percent of Utah's total surface trust land portfolio. Currently, approximately 60,296 acres of surface and/or mineral trust lands are held within Wilderness Study Areas in the MPA. When these lands are added to the 37,538 acres included in proposed ACECs, and an estimated 51,959 acres (Alternative C) of proposed NSO areas, Utah's school trust will be burdened with approximately 149,793 acres of lands within the MPA that cannot produce revenue or that have significantly reduced revenue potential. Alternative B increases impacts on the school trust even more by creating much larger special designations.

Conversely, SITLA's management of trust lands within special designations can directly affect the ability of BLM to manage the area for the purposes for which it was set aside. SITLA is not obligated by law, for example, to manage its lands within special areas for protection of wilderness characteristics or other values. SITLA's development of inholdings for cabin sites or other purposes consistent with SITLA's governing mandate may substantially defeat the purpose of the special designation. Accordingly, it is in the best interests of the United States as well as the State of Utah that the RMP create a robust and effective program for land tenure adjustments. The need for BLM to give priority to state-federal land exchanges has been recognized by BLM in the BLM Manual:

> The BLM recognizes that resolving these land ownership and management issues is an important public purpose *and gives priority to the exchange of state trust lands out of areas designated by the federal government for special purposes.*

BLM Manual H-2200-1, Chapter 13, B. (2005)(Emphasis added).

While we recognize that BLM identified certain lands for disposal, the disposal land list is inadequate to meet the need for BLM to acquire all state trust lands in existing WSAs as well as proposed special designations. Lands that should be added to the disposal list include: (1) all lands proposed for BLM disposal in the pending Utah Recreation Land Exchange Act (H.R. 1210/S. 390); (2) the block of BLM lands west of the Canyonlands airport that are currently subject to Potash/Potassium preference right leases; and (3) all BLM lands in Lisbon Valley.

Energy Permitting and Efficiency:

The Utah legislature in 2006 gave direction in an energy policy to engage in a streamlined permitting process to expedite issuance of permits for energy-related projects. Utah has a process to perform this function through its Department of Environmental Quality. The Moab BLM Office should commit to utilizing this established process in the review of such applications.

Energy efficiency is a concept that was endorsed through the issuance of a Governor's Executive Order in April 2006 with a goal of achieving an increase of 20 percent by the year 2015. The state requests BLM commit to either work toward this goal, or start coordinating energy efficiency increases with the Governor's Energy Advisor.

Green House Gas (GHG) reduction has been one of the objectives of Governor Huntsman's Blue Ribbon Council on Climate Change (BRAC). As activities with a potential to influence GHG occur in the area of the Moab RMP, the state asks that BLM stay aware of the policy considerations under discussion, and work with the state towards compliance at the appropriate time.

Air Quality:

The State of Utah recommends a two-step approach to air quality management and analysis. The first step includes interim measures which should be taken to protect air quality-related values. The second step includes a coordinated approach to assessing and protecting air quality in Utah.

As part of step one, the state encourages the BLM to request operators to apply best available control technology. The state also encourages the BLM to adopt emission standards for compressor engines consistent with the *Four Corners Air Quality Task Force Report of Mitigation Options, DRAFT: Version 7*, June 22, 2007 (Task Force Report). The BLM Farmington Field Office, San Juan Service Center and San Juan National Forest impose the Task

Force's suggested standards as conditions of approval. These standards are 2 g/bhp-hr for engines less than 300 HP and 1 g/bhp-hr for engines over 300 HP. The state encourages the BLM Moab Field Office to impose these emission standards as lease conditions for all new and relocated engines and as conditions of approval for all new APDs.

These standards would positively impact air quality, facilitate continued action, and would be consistent with neighboring state jurisdictions. These standards will not replace the need for comprehensive analysis of regional air quality issues in Utah. Rather, they reflect interim steps that the state believes should be implemented if exploration and development are to proceed and while a more comprehensive regional approach to air quality issues is being developed. As the BLM Moab Field Office makes future planning level decisions and site-specific decisions to implement the RMP, we suggest future air quality analysis include the following:

First, project proponents should assume that leasing and exploration will result in full-field development. Modeling should be conducted based on these reasonably foreseeable full-field development scenarios. Modeling of individual well emissions is insufficient because it fails to adequately capture cumulative effects.

Second, the air quality analyses should be cumulative in nature and include not only the planned field development but existing emission sources that may have coincident impacts. This means that an understanding of the emissions from other nearby existing or planned sources is needed to fully assess the cumulative impacts.

Third, the air quality analyses should be based on anticipated worst-case meteorological conditions for each dispersion scenario, *e.g.*, the meteorological condition for high near-field impacts would be different than the meteorological conditions leading to high long-range transport.

Fourth, the air quality analysis should address compliance/attainment with all applicable air quality-related requirements and standards. An evaluation of all criteria pollutants with specific emphasis on $PM_{2.5}$, ozone and their precursors should be made.

Fifth, the air quality analysis should specifically address impacts to sensitive visual resources and other air quality-related values that have been identified by the federal land managers.

Turning to step two, the state encourages all agencies - federal, state, and local - to collaboratively identify and address air quality-related concerns. The state encourages these stakeholders to come together through an entity such as the Natural Resources Coordinating Council, to develop more comprehensive analyses and region-wide modeling and to assess the impacts of land use planning and plan-based decisions on air quality in Utah. As part of this regional effort, photochemical modeling is needed to evaluate the formation of ozone and secondary particulate matter, as both of these pollutants are currently trending upwards in rural parts of Utah. Models used for analysis of ozone and $PM_{2.5}$ should include the chemistry module

needed to estimate the formation of secondary pollutants, *e.g.*, a photochemical grid model such as the EPA's Community Multi-scale Air Quality model (CMAQ) is recommended for the evaluation of ozone and secondary particulate formation. Completion of step two should not be interpreted as being a necessary component of this RMP, but should occur in the future, once the RMP is finalized.

Pending completion of comprehensive air quality analyses and region-wide air quality modeling, we encourage the BLM to work with stakeholders to research interim measures, such as those presented by the Four Corners Air Quality Task Force, to determine which emission mitigation strategies should be required as future lease and application for permit to drill (APD) conditions.

Travel Management:

Under *Utah v. Andrus*, the State of Utah is entitled to reasonable access across BLM lands to all school trust lands, including those within WSAs. Under the Preferred Alternative, *see* pp. 4-404 through 413, certain existing routes that provide the only physical access to trust lands sections would be deemed not to be "Designated Routes," and motorized access on such routes would be terminated. State records indicate that up to 48 sections of trust lands are affected by the provisions of Alternative "C." (See map attached as "Attachment D.") The Draft RMP does not address the impact of these closures on the economic value of the affected trust lands in either this section or its section on socioeconomic impacts. The RMP should specifically state that: (1) continued motorized administrative access on "non-designated" routes providing access to trust lands will be permitted to SITLA, its permittees, grantees and successors, notwithstanding any closure to the general public, to the extent such motorized access is currently available; (2) SITLA, its permittees and grantees may undertake reasonable maintenance activities to preserve and improve existing access across BLM lands, after consultation and appropriate environmental review by BLM and consultation with local governments as necessary; and (3) existing routes that are the sole access to state trust lands will not be closed and/or reclaimed without full BLM consultation with and approval by SITLA and the State. This addition is necessary for the proposed RMP to be consistent with the analytical assumption made by BLM in section 4.1.2 that reasonable access to state trust lands would be maintained. Notwithstanding the foregoing, it appears that a number of the affected trust lands sections are proposed for exchange to the United States pursuant to the Utah Recreation Land Exchange Act (H.R. 1210/S. 390). Other lands are located within existing WSAs, and may become the subject of future exchange proposals.

The state asks the BLM to explain its intention to designate D roads, and explain why different D roads may be designated across alternatives. *See* pp.4-274 and 409-410. Please clarify the authority under which BLM would designate county roads, and what happens to a D road if BLM chooses not to designate it. The State of Utah has a reversionary interest in any roads which may have been granted to the state and local government pursuant to R.S. 2477. Abandonment of the right-of-way by both entities is necessary for a complete resolution for any particular road.

Recreational River Corridor Management:

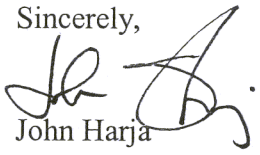
The Green River Corridor is an important location for outdoor recreation, and the associated economic effects, in the Moab Field Office. Many enthusiasts float the river, and travel to the river by four-wheel drive, OHV, mountain bike, or on foot. In addition, various locations within the river corridor are important for herons, the southwest willow flycatcher, and other avian species, as well as the humpback chub and other species of fish in the river. The areas at the mouth of side-canyons along the river are used for dispersed camping, which raises the risk of fire. In certain areas, the use of vehicles along the course of the river impacts other recreational users of the corridor far beyond the traveled path due to noise. The State looks forward to working with the BLM and local government to determine the best management prescriptions for the Green River corridor.

Real Property - Water:

BLM asserts it will honor all valid, existing rights. However, it appears that this statement may only apply to oil and gas, minerals, and grazing; no mention is made of water rights. Under Utah law, approved and perfected water rights are considered real property. BLM actions may, therefore, affect the value of this real property. Because of this, the State Engineer recommends that the BLM consider the impact its actions may have on water rights in general and non-BLM water rights in particular. This recommendation is particularly important because the right to use water is the underpinning of most economic, environmental, and social activities. If it is determined that any valid, existing water right will be negatively affected by BLM actions, then possible mitigation and/or compensation actions should be discussed.

In conclusion, thank you for the opportunity to comment. The state looks forward to continuing to work with the Moab Field Office as a Cooperating Agency. Further detailed comments and the various studies mentioned are attached. Please feel free to contact me with any questions or concerns about these comments, or the state's continuing desire to work with the BLM on the Final Resource Management Plan for the Moab Field Office.

Sincerely,



John Harja
Director

cc: Moab Field Office

Attachment A
Further State Concerns and Comments

Wildlife Habitat:

The Utah Division of Wildlife Resources' crucial wildlife habitat data are based on more than 20 years of data collection and wildlife observations by field biologists. These data are available to the public on the DWR web site (http://dwrcdc.nr.utah.gov/ucdc/DownloadGIS/disclaim.htm). This data reflects inventoried conditions and professional opinion, and, as such, should remain constant under all alternatives.

Mule Deer, Elk and Rocky Mountain Bighorn Sheep Habitat

Only one alternative, Alternative B, correctly acknowledges crucial mule deer and elk winter ranges, especially in the Book Cliffs part of the resource area. The proper description of crucial winter habitats should occur regardless of alternative. Similarly, Rocky Mountain bighorn sheep habitat differs among the alternatives. As stated above, crucial sheep habitat identification is based on years of observational data and should not be subject to alteration by mapping. There are no bighorn sheep presently inhabiting the easternmost portion of the Book Cliffs, due to the presence of domestic sheep. However, adequate bighorn sheep habitat exists along the entire Book Cliffs face and Alternative B is the only alternative which correctly describes this information. The state recommends that BLM utilize the best information available to describe the wildlife occurring within the resource area. Therefore, the wildlife habitat data should be presented consistently within the given alternatives and only impact scenarios will differ among alternatives.

Desert Bighorn Sheep Lambing, Rutting and Migration Habitat

The Division of Wildlife Resources stresses that bighorn sheep, particularly at certain points in their natural history, are highly susceptible to the effects of human disturbance. Surface occupancy within known bighorn sheep lambing areas, rutting areas and migration routes poses a threat to continued viability of that bighorn sheep population. Further, none of the alternatives address the fact that desert bighorn sheep wander between Crystal Geyser, Duma Point, and the Blue Hills. DWR has radio-telemetry data that clearly show ram migration between Littles Canyon (Moab salt property) and Crystal Geyser. This migration corridor should be acknowledged under the final RMP. DWR can provide the necessary telemetry mapping to facilitate incorporating these areas in the final RMP/EIS.

Potential Areas of Critical Environmental Concern (ACEC):

Cisco White-Tailed Prairie Dog

The state agrees that this area warrants special consideration for wildlife. We believe the value of this area to sensitive species can be retained, however, without specifying "no surface occupancy" for oil and gas development. In addition, the prescriptions for management, as laid out in Alternative C could be improved in several ways:

1. The estimate of disturbed acreage (Table 4.91, page 4-315) is not representative of impacts to wildlife because the direct impacts reflect only a small portion of the impacts that realistically must be viewed as accompanying oil and gas development. Increased volume and speed of traffic, frequent road maintenance and upgrades to all-weather use, construction of unnatural landscape features such as utility poles and storage tanks, noise from wells and compressors, off-road vehicle use (even when unauthorized) and increased recreational use are just a few examples beyond direct surface disturbance that negatively impact wildlife. These impacts are discussed elsewhere in the document, but they are not acknowledged in this table. The table should clarify that it attempts to describe only the direct disturbance, not the total area impacted, which is far greater. The indirect impacts must be acknowledged, as they may surpass the direct impacts in total effect on wildlife.

2. It is unclear how state comments will be sought for new rights-of-way for pipelines or service-access roads. We urge that, at the point of site-specific review for purposes of National Environmental Policy Act compliance, those environmental reviews be routed through the State Clearinghouse (the Resource Development Coordinating Committee, or "RDCC") for coordinated review and comment proceedings.

3. "Surveys" for wildlife are not considered to be a valid form of compensatory mitigation. *See* p. 4-315. Language in the final RMP should not refer to surveys as mitigation, unless those surveys are used to create enforceable spatial or temporal buffers.

4. By focusing solely on white-tailed prairie dogs, Alternative C misses the important point that prairie dogs create important habitat for many other wildlife species. There is room to enhance the discussion in the Final RMP and EIS.

The state and DWR provide the following suggestions for improving the Preferred Alternative in regards to the proposed ACEC:

1. Restrict use of utility poles to areas where underground conduits are not practical. The state suggests BLM consider the use of raptor excluders on utility poles where needed.

2. Work with U.S. Department of Agriculture's Wildlife Services to reduce nesting by ravens on storage tanks and other oil and gas infrastructure (*i.e.* design structures to be less suitable for nests).

3. Enforce 45 mile-per-hour speed limits on secondary roads in oil and gas development areas from July through September to prevent deaths of young hawks and owls due to vehicle impact. Young raptors are more likely to feed on road kill and are less accomplished flyers. Young golden eagles and burrowing owls seem particularly susceptible to being killed by vehicles.

4. When existing roads in raptor areas (for example, near the road along the southwest side of Cisco Mesa, which is heavily used by nesting raptors) are likely to experience greatly increased traffic due to well development, roads should be relocated as far as practical from the raptor nests regardless of whether or not the wells themselves are within a nest buffer.

5. On page 3-143, the RMP states "the planning area is not considered a suitable reintroduction area for black-footed ferrets due to dramatic declines in prairie dog populations." DWR considers the Cisco Desert the Number two priority for black-footed ferret reintroduction in Utah and we therefore, would request that this language be removed from the RMP/EIS.

Behind the Rocks

The state agrees that this area warrants special consideration for wildlife habitat. BLM should also consider including the parcel surrounding the Gunnison's prairie dog habitat northwest of Bridger Jack Mesa.

Other wildlife related suggestions and recommendations:

Land Tenure Adjustments

In Appendix A, Land Tenure Adjustment and Withdrawal Criteria A.1.1 Disposal Criteria (General), item # 8 states that "Lands will not be considered for disposal if they have: (a) any habitat for listed, endangered or special status species or (b) any habitat for any non-listed species if such action could lead to the need to list any species as threatened or endangered." Contrary to this statement, Parcel # R-11 is identified for disposal under all alternatives. This parcel (T 27 S, R 23 E, Sections 19 and 20) in Spanish Valley contains colonies of Gunnison's prairie dogs. Gunnison's prairie dog may again become petitioned for listing under ESA and, therefore, we would urge caution regarding the disposal of these sections of BLM land.

Pronghorn Fawning Habitat

Map 2-25 does not delineate pronghorn fawning habitat south of I-70 in the Cisco Desert which is currently a pronghorn fawning area. DWR is willing to assist the BLM in acquiring more current data and maps to more accurately describe the area.

Mitigation for development within crucial winter or summer range for big game species

Oil and gas development tends to fragment wildlife habitat, displace wildlife from their preferred habitats and directly destroy other habitats. Mitigation, in the form of habitat improvement through restoration, based on an index (for instance, one acre directly impacted:

three or four acres mechanically restored) to directly disturbed acreage is recommended for all development within crucial winter or summer range for big game species.

Special Status Species

DWR recommends BLM reference the name of the Utah Comprehensive Wildlife Strategy as the Utah Wildlife Action Plan (UWAP) because the new nomenclature is currently used by Utah's natural resource agencies. Several Utah Species of Concern, also indicated as Tier II species in the UWAP, are not recognized in the Moab RMP. We recommend listing the following Utah Species of Concern in the Moab RMP: Allen's big-eared bat (*Idioycteris phyllotis*), American three-toed woodpecker (*Picoides tridactylus*), big free-tailed bat (*Nycitnomops mactotis*), cornsnake (*Elaphe guttata*), ferruginous hawk (*Buteo regalis*), Lewis's woodpecker (*Melanarpes lewis*), spotted bat (*Euderma maculatum*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

In Alternative C, the BLM recommends a 0.5 mile buffer for permanent above-ground facilities within active greater sage-grouse and Gunnison sage-grouse leks. The buffer used for the protection of sage-grouse habitat from development should follow the currently accepted management guidelines as set forth by Connelly et al. (2000) and the 2002 Utah Strategic Management Plan for Sage-Grouse. This buffer is two miles. Application of site-specific modifications to these guidelines should only be made with full concurrence of the state. Alternative C also recommends a 1:1 ratio of habitat reclamation due to fragmentation or loss of sage-grouse habitat. Generally, we suggest mitigation measures to compensate for the loss of wildlife habitat (*e.g.* mitigation in the form of habitat restoration for loss of elk or mule deer winter range). However, there are no alternatives or reparations currently known to suitably replace a sage-grouse lek. UDWR recommends BLM avoid and minimize impacts to sage-grouse leks to the greatest extent possible due to minimal chances of recovering lost sage-grouse populations.

Section 4.3.19.6 – Impacts of Mineral Decisions on Wildlife and Fisheries

Paragraph two on page 4-453 states that interim and final reclamation will use native seeds. In Utah's arid climate, native plants do not compete well with established, undesirable non-native invasive plants such as cheat grass (*Bromus tectorum*). Desirable, non-invasive non-natives with similar endemism have evolved competitive traits that allow them to hold the aggressive undesirable invasive species in check. To ignore this and disallow a careful but at times necessary use of non-native plants is to discount a key management tool currently available to resource managers. More importantly, this choice leads to a continuation of undesirable, non-native weeds. Through much experience, the state believes there are situations and circumstances where non-native plants may be the only tool to manage non-native weeds because the desirable native species either cannot compete with the Eurasian exotics, or are unavailable in quantity. Because of these reasons, the state proposes desirable non-native plants be considered an effective management tool for rangeland management.

Paragraph three states "habitat quality may be preserved by the implementation of seasonal restrictions and spatial buffers that protect crucial habitats." Seasonal restrictions, such as winter closure in crucial winter ranges and spatial buffers (such as 0.5-mile radii around active

raptor nests) should be required of energy developments. We would point out availability of the US Fish and Wildlife Service's Raptor Protection Guidelines, which offer practicable answers to the problems of finding a site for oil or natural gas developments in active raptor nesting areas.

Minerals - Energy - Economic Information:

The economic impacts summary table 2.2 (p. 2-78) for minerals is incomplete. It only mentions lease rental and royalty payments for oil and gas. Please address severance tax and property tax as economic benefits. The same table discusses the economic impacts of recreation through sales tax and employment (2,000 jobs), but fails to indicate whether or not those are low or high paying, seasonal or permanent jobs.

The summary of impacts section should be expanded to discuss constraints upon mineral development when all requirements proposed under each alternative are considered concurrently. *See* p. 4-111. This should include not only the acreage available under each alternative, but the viability of development in light of restrictive but not prohibitive requirements such as Class II Visual Quality Objective.

The discussion of locatable minerals notes that the anticipated effect of uranium development would be the same under all alternatives because the acres open to extraction would be the same across all alternatives. *See* p. 4-259. This appears to ignore the effect of other stipulations, such as VQOs, that vary across all alternatives. Please discuss the extent to which the various requirements of each alternative would affect the cost and reasonably foreseeable level of development.

Paragraph three on page 1-15 discusses BLM's direction under EPCA, stating that the BLM will "weigh the relative resource values, consistent with the multiple use and sustained yield mandates required by FLPMA." None of the alternatives adequately analyze the loss of revenue from formally or effectively eliminating mineral development in many of the lands subject to Special Designations and restrictive viewshed. There are references to number of wells to be allowed under the alternatives, but no indication what that means in terms of lost revenue to the United States, the State of Utah, local governments, and Utah's school trust, and the effect of that revenue loss under EPCA.

Air Quality:

The air quality analysis assumed all new compressors would operate at a NOx emission rate of 0.7 g/hp-hr. *See* p. 4-17. Please clarify how BLM's Moab Field Office will ensure emissions from newly permitted compressors will be consistent with this assumption. While we encourage BLM to take aggressive steps to manage emission sources consistent with the EIS's assumptions, this emission rate departs from recent recommendations by the Four Corners Air Quality Task Force and may be difficult to meet.

Consecutive paragraphs indicate that the air quality analysis was premised on assumed well spacing of 40 acres and 40 kilometers. *See* p. 4-20. Please confirm that the analysis was based on 40 acre spacing.

Assumptions regarding the number of compressors and dehydrators listed on page 4-20 are inconsistent with those shown in Table 4.7. If the numbers in Table 4.7 are correct and the analysis was based on the numbers discussed in the text, the analysis could significantly understate air quality-related impacts.

History - Cultural Resources:

The following comments should not be considered Utah State Historical Preservation Officer (SHPO) comment under Section 106 of the National Historic Preservation Act. The state anticipates further consultation with the SHPO regarding more specific effects to cultural resources under the National Historic Preservation Act when the Final Plan is developed.

In addition, in the interest of an efficient process, the state recommends that prior to finalizing the plan, the BLM undertake a final check to ensure that other potential areas of high cultural resource densities or values are examined for potential conflicts. These areas may include:

1. Areas within the Moab FO with particularly high densities of cultural resources, such as the Lisbon Valley area. These areas often pose particular challenges for multiple use management. Identifying these areas and conducting specific analyses should assist the BLM in making management decisions that will result in fewer resource conflicts during the life of the plan.

2. Areas within the Moab FO where individual cultural resources or particular cultural resource groups have aspects of significance or values that include the overall setting and feeling of the resource(s). Examples may include dense rock art concentrations, Ancestral Puebloan architectural sites, historical homesteads, cemeteries, mining and ranching sites and historic roads/trails.

3. Areas and resources within the Moab FO that tribes and/or the public have identified as having particular heritage values.

Techniques that can be used to identify these resources, either in this plan or in developments subsequent to this plan, could include the following:

1. Utilize GIS data to identify areas with known site densities exceeding one standard deviation of the mean site density for inventoried areas.

2. Search the existing site database for named sites, as such sites are often more likely to represent significant sites.

3. Search the existing site database for rock art sites, architectural sites or any other site types that have potential to be eligible to the National Register of Historic Places for reasons of setting, feeling and/or association in addition to data potential.

4. Utilize historic background research to identify known or potential historically significant townsites, mining districts, roads/trails and individual homesteads.

The state appreciates the BLM's efforts to conduct proactive resource identification, to work with rural communities towards understanding historic values, and to prioritize cultural resource inventory areas within the plan and under Section 110 of the National Historic Preservation Act. The state suggests that BLM develop a specific ongoing program to identify and target identification efforts under Section 110 of the National Historic Preservation Act. Such a program could include taking input from the public on potential priority areas and balancing identification needs with public, tribal, development, resource interests, in consultation with the State Historic Preservation Officer. The state recommends that priorities include potential heritage tourism development in addition to more typical resource investigation and/or protection efforts. Under such a flexible strategy, identification efforts could better respond to public needs and interests. BLM should commit to developing a specific, measurable procedure for funding, identifying and conducting such resource identification efforts due to the overall benefits of these efforts for future plans and actions.

Additionally, the state appreciates the site density analysis used to examine potential effects for each of the management prescriptions under the alternatives. The state agrees this analysis is appropriate and can be significantly enhanced and strengthened by additional techniques. In particular, as the Final Plan is implemented, the state requests that the BLM focus these techniques on the areas specifically identified in the plan as having high cultural resource values. These include, but are not necessarily limited to: the Sego Rock Art site, the Wall Street/Colorado River Rock Art District; Behind the Rocks; Ten Mile Wash; Mill Creek Canyon/South and North Forks of Mill Creek; the Wall Street portion of the Highway 279/Shafer Basin/Long Canyon proposed ACEC; Westwater Canyon; Kane Springs Canyon; Seven Mile Canyon; Bartlett/Hidden Canyon and Hell Roaring Uplands; and the Dolores River Canyon Archaeological District and other areas specified as potential National Register nomination areas.

The state notes that in the analysis of recreation impacts to cultural resources, the various alternatives (excluding the "No Action" alternative) note or imply that monitoring could help to reduce recreation impacts. It seems, however, that the RMP section does not stipulate such monitoring under any of the management alternatives. The state requests that under recreation management "common to all," the BLM stipulate that a cultural resource monitoring plan be developed as a component of plan based activities for special recreation management areas.

Additionally, the state is aware that both recreation and travel management (including OHV management areas and designated routes) often pose particular challenges for cultural resource management in these areas. Even restricting vehicles to designated routes or the development of recreation management can result in increased visitation to cultural resource sites and subsequent impacts to those sites. The RMP acknowledges these potential impacts in the analysis section. Therefore, as mitigation, the state recommends the BLM specify in the RMP the subsequent development of specific cultural resource management plan(s), or use of programmatic agreements for responding to recreation and travel occurring in the Moab FO.

These plans or agreements could incorporate the existing proposals for monitoring or targeted field inventory of cultural resources in recreation areas or travel corridors with public input processes and monitoring of recreation and travel itself to identify issues and develop processes for resolving any potential resource conflicts. The plans could also provide for means of effective public input into determining areas where recreation or travel and cultural resources could be managed for mutual benefit, such as potential heritage tourism development.

Inventory and Proposed Management of Areas with Wilderness Characteristics:

Because areas inventoried as possessing wilderness characteristics were treated differently across alternatives, BLM should clarify the criteria utilized to determine which of such areas were included in the preferred alternative.

BLM may have inconsistently treated county travel route information. The 2007 review considers county travel route data in determining whether areas have wilderness characteristics. County route information appears to represent new information unavailable at the time the 1999/2003 inventory was completed, but the 1999/2003 review was not updated in light of this new information and potentially changed conditions. Specific examples are addressed below. The result is an inconsistent standard for the existence of wilderness characteristics. Because of this oversight, portions of the BLM analysis may not reflect application of the best available information.

On page 4-157, the DEIS states that under Alternative B, all 266,485 acres of non-WSA lands with wilderness characteristics would be managed as VRM class II. Table 4.55 identifies multiple areas (Beaver Creek, Behind the Rocks, Dead Horse Cliffs, Dome Plateau, Fisher Towers, Goldbar, Gooseneck, Horsethief Point, Hunter Canyon, Labryinth Canyon, Mary Jane Canyon, Mill Creek Canyon, Negro Bill Canyon, and Westwater Canyon) of non-WSA lands with wilderness characteristics that would be managed as VRM Class I. Please clarify what VRM class applies within these areas.

On pages 4-158 and 159, the DEIS states that under Alternative B, new water development facilities for wildlife would likely be precluded within non-WSA lands with wilderness characteristics. Please clarify why this would be the case since other Field Offices repeatedly concluded that stock ponds often do not detract from an area's wilderness characteristics. Please also discuss the extent to which Alternative C would preclude development of water facilities.

The state's remaining comments regarding BLM's inventory of lands with wilderness characteristics are based on the background documents available on the Moab Field Office's web page.

It appears that many of the areas were divided into sub-units based on "substantially noticeable routes." In some instances, this appears to allow the MFO to de-emphasize impact to wilderness characteristics by treating routes as boundaries between contiguous areas rather than intrusions into a single area. The MFO should consider whether distinguishing between contiguous sub-units is appropriate.

Arches Adjacent -

Portions of sub-units 4-6 determined to have WC are not identified on the map.

The text discussing unit five identifies wilderness characteristics for 625 acres, but the map does not show contiguity with Park. Is this correct? If less than 5,000 acres and discontiguous with the park, what is the basis for determining that outstanding opportunities for solitude exist?

Diamond Canyon -

The text indicates that unit six does not meet wilderness characteristic requirements but the map appears to indicate otherwise. Please clarify whether Unit six is considered to have wilderness characteristics.

Goldbar -

The map appears to show two exclusions from the analysis area (blue circles) that are not discussed in the text. What are these areas?

Area six is discussed in the text but not identified on the map.

Labyrinth Canyon -

Portions of the area determined to possess wilderness characteristics in the 1999/2003 review appear to have high route density. Please explain why these routes do not compromise either naturalness or the outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Area four is mapped as possessing wilderness characteristics but the text appears to contradict this determination. Please clarify.

Lost Spring Canyon and Mary Jane Canyon -

Portions of the area determined to possess wilderness characteristics in the 1999/2003 review appear to have high route density. Please explain why these routes do not compromise either naturalness or the outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Mill Creek -

The text and map conclude that the analysis area lacks wilderness characteristics, but the wilderness characteristics review form shows that "some or all of the area has wilderness characteristics as shown on the attached map." Please clarify whether the analysis area has wilderness characteristics.

Special Recreation Management Areas and Areas of Critical Environmental Concern:

In general, the state is opposed to the establishment of Areas of Critical Environmental Concern overlapping Wilderness Study Areas or any other layering of restrictive land use designations unless clearly required by the resources present. The state also does not favor creation of Areas of Critical Environmental Concern that exceed the scope of the resources they are designed to protect.

The state, however, wishes to continue working with BLM upon the proposed establishment of the Highway 279 Corridor/Shafer Basin/Long Canyon Area of Critical Environmental Concern (ACEC) as well as the Colorado River and Labyrinth Rims/Gemini Bridges Special Recreation Management Areas (SRMA).

Utah's Division of State Parks currently has an RP&P Lease for land along the east side of Dead Horse Point State Park. This land has been identified within both the Colorado River SRMA and the Highway 279 Corridor/Shafer Basin/Long Canyon ACEC. The Division would like to request an exception for the land currently under RP&P Lease that would eventually allow this land to be patented to the Division.

The state would like to work further with the BLM on the management provisions for the Shafer Basin area, particularly across the boundary with the Monticello Field Office. The state has a serious interest in protecting the most immediate and critical portions of the viewshed for Dead Horse Point State Park.

The state supports continued NSO stipulations on mineral leases (split estate with Federal minerals) within Dead Horse Point State Park, and the stipulations on surface disturbing activities along the Highway 313 scenic driving corridor. Highway 313 (a state-designated scenic byway) provides access to Dead Horse Point State Park and Canyonlands National Park. This route sets the scene for these parks' feeling of wildness and remoteness, and in the case of Dead Horse Point, much of this route is within the viewshed of the park. Highway 313 also provides access to a number of other popular recreation areas.

Recreation:

The Draft RMP and DEIS appear to rely on the subsequent creation of "recreation area management plans" (RAMPs) and "river management plans." *See* p. 2-18. Please explain the process for developing and approving these plans. Will the plans be subject to NEPA?

The Plan/DEIS states that "[w]here a specific [Recreation Management Zone] (or Focus Area) is not identified within a[Special Recreation Management Area], the focus of that area is motorized, backcountry touring on designated roads." As written, this statement appears to indicate that those portions of SRMAs that are not subject to a more specific RMZ will be managed to emphasize motorized recreation. This appears inconsistent with designating SRMAs to emphasize non-motorized recreation and mountain bike backcountry touring. *See e.g.* the Bookcliffs SRMS. Please also explain how management of RMZs specifically designated for "motorized backcountry touring" would differ from the default management of SRMA for motorized backcountry touring.

The Plan/DEIS makes repeated reference to "destination SRMAs." *See e.g.* p. 2-19. Please explain what a "destination SRMA" is and how such areas would be managed.

The discussion of the Cottonwood-Diamond Watershed Potential ACEC notes that the proposed designation would remain in force, "until the watershed is restored to a healthy and functioning condition." *See* p. 4-320. Please clarify what management conditions would apply once the desired future condition is attained and the mechanism used to change prescriptions.

Table 4.69 indicates that Westwater Canyon would be subject to daily launch limits. Please clarify whether launch limits include both private and commercial trips. The BLM web site indicates that during peak season, there is a 150 person launch limit (this information was not included in chapter three). Please explain why all alternatives significantly reduce this number.

Potential Wild and Scenic River Designation:

While the state is committed to exploring segments of rivers that may qualify for inclusion in the Wild and Scenic River System, the state balances this commitment against concerns that designation of some stream segments as components of the National Wild and Scenic River System (NWSRS) may jeopardize the ability of local communities, industry, farmers, Indian tribes, and other water users to appropriate and develop water and to get change applications approved in order to meet their future water needs. Specifically, the state is concerned that Wild & Scenic River designations may, among other possibilities:

1. Limit the ability of communities to develop water needed for future growth;

2. Limit additional industrial growth including oil and gas, and minerals development;

3. Limit additional agricultural growth;

4. Reduce funding to the Colorado River Salinity Control Program, or affect agreements already in place for the Endangered Fishes Recovery Program.

Section 1(b) of the Wild and Scenic Rivers Act, 16 U.S.C. § 1271-1287, states, "[i]t is hereby declared to be the policy of the United States that certain selected rivers of the Nation, which with their immediate environments, possess outstandingly remarkable . . . values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected." Accordingly, the purpose of the Act "is to implement this policy by instituting a National Wild and Scenic Rivers System (NWSRS), by designating the initial components of that system, and by prescribing the methods by which and standards according to which additional components may be added to the system." *Id.*

The state finds the discussion regarding potential recommendations for additions to the NWSRS in the Draft RMP and EIS confusing and contradictory. As written, the section does not fully satisfy the requirements of federal or state law, or BLM policy and direction. The state believes it is imperative that the BLM properly disclose the reasons and rationale for determinations of eligibility and suitability for proposed additions to the NWSRS, and to fully meet the requirements of state and federal law in doing so.

The state is concerned that the DRMP/EIS does not state, in a full and complete manner, the authority for protection of river segments while studies pursuant to Section 5(d)(1) of the Act are underway, and protection until Congress may act upon any recommendations made in planning documents pursuant to BLM planning authority. The 1997 Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council indicates that river segments found eligible or suitable for inclusion in the NWSRS through agency planning processes "[a]re not protected by the [Wild and Scenic Rivers] Act" itself from projects which may affect the "[r]iver's free-flowing characteristics and other identified values." The report explains that an agency which proposes a river for inclusion in the NWSRS "[s]hould, within its authorities, protect the values that make the river eligible or suitable." *See* Wild and Scenic Rivers Act: Section 7, Technical Report of the Interagency Rivers Coordinating Council, Oct. 2004. Also, according to Section 13(f) of the Wild and Scenic Rivers Act (16 USC§ 1284(f)) management of a river segment found suitable for inclusion in the NWSRS cannot interfere with access to sovereign lands found within the proposed segment. Further, BLM Manual section 8351.53 delineates what actions the BLM may take to protect a river segment found suitable for inclusion in the NWSRS, after due process and public notice.

In addition to its concerns about the correct statement of authority to manage river segments, the state is concerned that the BLM has not sufficiently divulged the proposed management prescriptions for the river segments identified in the Draft RMP and EIS. BLM Manual Section 8351.32C reads: "[p]ublic notification of protective management shall occur no later than publication and release of the draft RMP, or plan amendment. The Draft RMP/EIS, at page 3-135, acknowledges the above referenced Manual, but then describes the protective management as "[c]ase-by-case review and mitigation of any actions proposed that might affect the eligible river." The DRMP/EIS language continues "[t]he ROD will identify specific management conditions that are in keeping with a suitability decision." *Id.*

The text at page 3-135, related to the above mentioned concern, also provides examples of some of the contradictions which occur within the DRMP/EIS. The text states that suitability

will be determined "[t]hrough the planning process for this DEIS." However, reference to "[p]ending future suitability studies" is found at page 4-140. Additionally, reference is made to 29 eligible segments that will be further reviewed for suitability. This same number (29) appears elsewhere in the document; however at several places, including pages 2-4, ES-5 and ES-6, 28 eligible segments are indicated. The DPMP/EIS identifies the number of eligible rivers as 13 at several places and 12 at many other locations.

The state is also concerned by the confusion that results from the inappropriate uses in the DRMP/EIS of the terms designate or designated in reference to eligibility or suitability. The RMP/EIS process includes eligibility determinations and suitability findings, and the ROD may include designation recommendations. However, designation does not occur until Congress acts favorably on a recommendation, by formally designating recommended rivers as components of the NWSRS. Accordingly, the use of the term "designation" in place of "classification," *see e.g.* pages 2-4 and 2-91, is inappropriate.

National Environmental Policy Act:

Cumulative effects

The cumulative effects analysis would be enhanced by developing a map depicting the cumulative effect of all use restrictions imposed under each alternative. Such a map would give the reader a better understanding of the cumulative effect of all BLM proposed management actions. Such a map could resemble maps 4-1 through 4-4 in the *Kanab Field Office Draft Resource Management Plan and Draft Environmental Impact Statement* (Oct. 2007).

In addition to improving disclosure of the cumulative effect of all BLM proposed actions, BLM should clearly identify all reasonably foreseeable non-BLM actions within the planning area. These reasonably foreseeable future actions should be carefully considered as part of the cumulative effects analysis. As written, it is unclear what - if any - non-BLM actions were considered as part of the cumulative effects analysis.

Identification of alternatives

Please clarify the identification of alternatives. For example, pages 2-2 through 2-5 identify Alternative A as the No Action Alternative, Alternative B as the Preferred Alternative, Alternative C as the Alternative emphasizing Resource Protection and Alternative D as the Alternative emphasizing Development. Page 4-1 identifies Alternative B as the Alternative emphasizing Resource Protection, Alternative C as the Preferred Alternative and Alternative D as the Alternative emphasizing Development.

Similarly, pages 2-2 through 2-5 indicates that under Alternative C, 31 percent of the MPA would be closed to oil and gas development and only five percent of the MPA would be open under standard lease terms and conditions. In comparison, Alternative B would close only 14 percent of the Moab planning area and leave 48 percent of the planning area open under standard terms and conditions. However, Table 4.3 indicates that despite the less stringent stipulations applied under Alternative B, 2,652 fewer oil and gas wells are anticipated compared to the more restrictive Alternative C. Please clarify this apparent discrepancy.

OHV issues:

BLM's preferred alternative offers the best starting point for building the final decision, while finding balance between the competing interests in this area. The state specifically recommends the following:

OHV use around camping areas and trailheads

A significant problem facing all managers of public lands is intense and indiscriminate OHV use around dispersed camp areas and some trailheads. Enforcing closures in these areas is very difficult. A model for managing this type of use has been implemented on the Manti La Sal National Forest in Lake Canyon. Designated routes called "training trails" offer a significant length of sustainable trail within a confined area that provide experiences young riders are seeking. Off trail riding has become almost non-existent since these trails were put in place. Some provision for addressing this issue should be mentioned in Appendix G.

OHV rights-of-way across SITLA properties

Many designated OHV routes cross properties owned by SITLA. To avoid having these routes closed in the future by sale of these lands, rights-of-way should be placed in public ownership. Programs and funding are in place to accomplish this goal. This opportunity should be noted in the plan.

White Wash Sand Dunes Open OHV Area

The area allocated for this use under the preferred alternative is too small. It should be enlarged to provide the open area riding experience most riders are looking for. There should be a better mix of sand and slick rock with a logical boundary.

Route Designation Comments:

Designated routes

As previously noted, BLM should clarify its apparent intent to designate D roads, and explain why different D roads may be designated across alternatives. *See* pp.4-274 and 409-410. Specifically, please clarify the authority under which BLM would designate county roads, and what happens to a D road if BLM chooses not to designate it. Some of these roads may be subject to R.S. 2477 claims. The State of Utah has a reversionary interest in any roads which may have been granted to the state and local government pursuant to R.S. 2477. Abandonment of the right-of-way by both entities is necessary for a complete resolution for any particular road.

Table 4.54 on page 4-147 indicates that, under alternatives C and D, no portion of Lost Canyon would be either "open" or subject to "limited" OHV use. Pages 4-150 and 4-151 indicate authorization of 12.99 and 14.09 miles of designated routes within the Lost Canyon area, respectively. Please clarify what level of OHV use, if any, would be authorized within Lost Canyon.

Access to dispersed camping areas

Anyone driving off a designated route to access a dispersed camping area would be in violation of the proposed travel plan. Where this type of camping is permitted it may not be feasible to carry all the necessary camping gear to a camp spot. The plan should address this issue so that legitimate camp spots can be accessed from a legal route. Fish Lake National Forest has successfully implemented a program to address this subject.

Duplicate and multi-jurisdictional routes

As BLM formulates the Final RMP and EIS, please remember that while duplicate routes are generally not needed, they may be desirable when they provide different riding/driving experiences or require very different user skills. Also, washes are not always reliable routes because of weather events. If these washes become temporarily impassible, the alternative route would still allow a person to complete a loop. A case in point would be the road adjacent to Salt Wash.

We encourage BLM to coordinate route alignments with other jurisdictions. This may be difficult to do for motorcycle routes in some areas because inventories are probably not complete. This is particularly critical for the border with Colorado in the Rabbit Valley/Bitter Creek area.

Missing links for loop routes

For the most part, the designated routes in Alternative C do a good job of completing loop routes for ATVs and full-sized vehicles. There are, however, a few additional connecting routes needed. Some are double track ATV routes and were probably missed in the field inventory. In other cases, routes were designated as motorcycle routes where ATVs or even full-sized vehicles had been using them to complete loops

ATV/motorcycle route.

There are no ATV/motorcycle-only routes proposed in the preferred alternative. This is a useful designation to complete the array of OHV alternatives, especially for routes where use by the larger vehicles is not desirable or acceptable.

In several cases, motorcycle trails shown in Alternatives C and D have been used for several years, and are currently being used, by ATVs and/or 4x4s as integral segments of longer loop routes. Also, the initial inventory and subsequent designation of motorcycle routes was incomplete. We recommend consultation with our OHV coordinator.

Popular riding areas

The Duma Point area (excluding the sand dune open area) has been a favorite riding area for many years and includes numerous old roads and user created trails, some in washes and some on slick rock. With few exceptions, there are no designated routes in this area in any of the alternatives and there is no explanation as to why these routes were omitted.

The state requests that the OHV riding area just north of the Airport on the Blue Hills Road remain open. The area has served as a quasi-Motocross Track and hill climb area for many years. The area consists primarily of shale soils with little or no vegetation. The area is well-

suited to the existing use and provides an authorized area for hill climbing. Much of the area, if not all, is existing road and trail.

The area does not receive an enormous amount of use, but it meets an intensive demand that is different from all other authorized areas in the Moab area (*i.e.* motocross and hill climb.) The area is not a rider destination location, but it provides the ability to refer persons to an area for hill climbing, etc. with minimal impact both aesthetically and environmentally. Historically, the area receives its greatest use during the winter months when most other riding areas are snow or ice-packed. The old track site has a southern exposure and allows for winter riding. It also receives use in the early spring before the thaw has taken place.

Travel Plan (Appendix G):

Please clarify whether page G-11's reference to wildlife habitat includes habitat for all species or is it intended to apply to habitat for more significant species or groups of species.

Page G-11 uses the term "extreme." What constitutes an "extreme" hazard necessarily involves an element of subjectivity. In some cases hazards may add to the use experience. Accordingly, please clarify what BLM considers to represent an extreme hazard.

Page G-15, Emergency Limitation or Closure: Perhaps "immediately closed" should read, "immediately mitigated or closed" or some similar wording. Sometimes mitigation can be immediately put in place and closure would not be necessary.

The implementation process section on page G-29 should stress the need for maps and signing as both are needed. All designated routes should have a number or some other identifying symbol or name that corresponds to the number, name or symbol on the map. These same identifiers should correspond to what is shown on route signage. With good signs and good maps it is reasonable to expect users to stay on the designated routes. Until these aids are in place law enforcement personnel and users will be equally frustrated.

Trust Lands:

As discussed above, SITLA believes the Draft RMP fails to adequately address the impact of BLM management decisions on state trust lands, and the need for a substantially more robust program for land tenure adjustments between the BLM and the State of Utah. BLM has an obligation to include in its planning an effective and timely means of addressing the impact of federal land actions on inheld state trust lands. The state will look for the inclusion of such a plan as part of its support for the Final RMP.

Section 1.3.2.2 – Issues Identified for Consideration – Issue 8 (page 1-10).

This discussion should contain detailed reference to the issue of inheld state lands in special designations, particularly WSAs, ACECs, and areas to be managed for "wilderness characteristics," and the need to give priority to resolution of this issue.

Section 1.3.3 -- Development of Planning Criteria (Page 1-13).

BLM states that the RMP will "apply only to public lands and, where appropriate, split-estate lands where the subsurface mineral estate is managed by the BLM." BLM should re-consider whether it can impose its standards on split estate lands where it does not own the surface. This action diminishes the rights of the surface owner, whether fee or trust lands, to manage its lands in the manner it sees fit. So long as the operator of an oil and gas well has obtained a satisfactory surface use agreement that can be included in its Application for Permit to Drill to the BLM, BLM should not unilaterally limit mineral development.

Paragraph 3.6.2.1 – Land Tenure Adjustments (Page 3-28).

This paragraph should specifically reference the need for federal acquisition of state school trust lands that are captured by federal reservations and withdrawals such as wilderness study areas, and that all land tenure adjustments necessary to accomplish this goal will be a priority, in accordance with applicable BLM policy guidance (the BLM Manual provisions re state exchanges).

In addition, state selection (*i.e.* quantity grants under the Utah Enabling Act, indemnity selections under the Utah Enabling Act, 43 U.S.C. §§ 870-871, and other applicable statutes) should be mentioned as an equally preferred method of land disposition as land exchanges. The BLM's publicly-expressed policy concerning state selections, as described in the BLM Manual, is as follows: (1) the remaining entitlements of the States are to be considered as obligations and debts due the States by the federal government; (2) in applying applicable laws, regulations and policies, BLM is to consider the equities of the States to the greatest extent possible within the constraints of applicable law; and (3) satisfaction of state selections is deemed as "serving the national interest" in connection with FLPMA, including land use planning under FLPMA. BLM Manual 2621.06 A-C. *See also* BLM Instruction Memorandum No. 82-33, dated October 15, 1981 (IM 82-33). In particular, this paragraph should be modified as follows:

> ... Lands identified for disposal must meet public objectives, such as community expansion and economic development. The preferred method of disposal is land exchange (discussed in Section 3.6.2.3). Facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority. state selections under the Utah Enabling Act and other applicable law will also be given priority pursuant to BLM Manual 2621.06A-C....

In addition to this modification, the criteria for land tenure adjustments contained in Appendix A – Land Tenure Adjustment and Withdrawal Criteria – should be modified as discussed below.

Section 3.6.2.1.2 – Exchanges and Acquisitions (Page 3-29).

The state encourages the BLM to add a new paragraph after the first paragraph, as follows:

> Facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority.

Paragraph 4.1.2 – Analytical Assumptions (Page 4-2/3).

BLM's second to last analytical assumption, that non-BLM lands would be minimally directly impacted by RMP decisions, since BLM does not make land decisions on non-BLM lands, is incorrect with respect to state trust lands. The largest source of revenue for the Utah school trust is from oil and gas bonuses and royalties. In much of Utah, in order to establish an economic oil and gas resource play, the exploration company needs a large areal footprint. It is likely that multiple sections would have to be leased and developed in order to develop the necessary reserves to make the play economic. In SITLA's direct experience, companies will not lease one trust land section, if they cannot lease the surrounding BLM sections. BLM decisions to withdraw mineral lands from leasing in WSAs, areas with wilderness characteristics, ACECs, and other areas therefore directly affect the economic viability of state trust lands inholdings in those areas, particularly for oil & gas.

BLM's last analytical assumption, that reasonable access to state lands, across BLM lands, would be provided under all alternatives, needs to be specifically repeated in Table 2.1 under the heading "Management Common to All Alternatives" with a notation that access to state trust lands will be granted even if an area is otherwise an avoidance exclusion area for ROWs. Under the decision of the U.S. District Court for the District of Utah in *Utah v. Andrus*, BLM is obligated to provide reasonable access to all state trust lands, including such lands located within wilderness study areas.

Section 4.1.3.1/Table 4.2 – Oil and Gas.

As discussed above, BLM withdrawals and special designations directly affect development of oil and gas on SITLA lands. BLM should assume that, in addition to the loss of oil and gas wells on BLM lands, there will be an additional loss of wells on SITLA lands in proportion to the amount of SITLA land within the proposed special designations under each alternative.

Section 4.3.5 – Lands and Realty (Pages 4-63/69).

The second paragraph of section 4.3.5.1 (Impacts Common to All Alternatives) incorrectly states that 354,015 acres within WSAs and the Black Ridge Wilderness Area are closed to surface disturbing activities and thus excluded to new ROWs. Under *Utah v. Andrus*, BLM is obligated to grant reasonable access to inheld state trust lands in WSAs. This fact should be mentioned. In addition, BLM should note in this or the following paragraph that since such ROWs and accompanying development on state lands could degrade wilderness characteristics, acquisition of inheld state trust lands by land exchange will be a priority of BLM's land and realty program.

Section 4.3.12 – Socioeconomic Resources (Pages 4-252/277).

BLM decisions to withdraw mineral lands from leasing in WSAs, non-WSA lands with wilderness characteristics, ACECs, and other areas directly affect the economic viability of state

trust lands inholdings in those areas, particularly for oil & gas. Restrictive designations additionally increase the cost of access to trust lands, may impair marketability, and require the expenditure of trust resources in pursuing land exchanges with BLM. These facts should be acknowledged appropriately in the discussion of socioeconomic impacts.

In particular, as noted in the comments to Table 4.2, BLM should assume that in addition to the decline in the number of wells drilled on BLM lands, there will be a proportionate decrease in the number of wells drilled on trust lands. Based on SITLA's ownership of 12.3 percent of the MPA, it can easily be assumed that several dozen wells will not be drilled on SITLA lands if alternative B is adopted. All bonus, rental and royalty revenues from these wells at SITLA's royalty of 12.5 percent or 16.67 percent would be lost to the Utah Permanent School Fund, a loss potentially (using BLM's average well figures) of over $1,000,000 year to Utah schools. BLM should also note that, based upon recent discoveries in the MPA area, average well production may be considerably higher than estimated, increasing the impact on Utah schools.

Appendix A.1.1. Land Tenure Adjustment Criteria .

Add a new numbered paragraph in A.1.2 stating that facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority in accordance with existing BLM policy direction (i.e. BLM handbook sections directing priority to removal of state inholdings).

Delete numbered paragraph 9 in A.1.1. It is inconsistent with county plans and may hinder necessary exchanges to acquire state inholdings. FLPMA does not require that there be no net loss of public lands.

Please consider adding a new section A.1.5., State Selections, which should read as follows:

> State selections under the Utah Enabling Act and other applicable law will also be given priority pursuant to BLM Manual 2621.06A-C. All lands not encumbered by a withdrawal or other special designation will be available for state selection.

Water Resources and Rights:

The state compiled a list of potential reservoir sites located on or would encroach upon BLM lands if built. This list was comprised of sites identified in Federal, state and local documents for water development projects and individual storage sites. After review, it was determined that there were no currently viable sites that would encroach on BLM lands or otherwise conflict with the management alternatives presented in the Draft RMP.

Although there are currently no proposals that interfere with the Draft RMP, increased development may change the future needs of the area. Opportunities for developing future water storage are disappearing as land is used for other purposes and placed in protective withdrawals. As BLM considers future uses for public lands, it is important to recognize the need for water

projects that will help meet the future demands of the region's growing population. Notes which identify the alternative(s) which best preserves these future opportunities should be added as appropriate.

Under the Mill Creek Canyon Potential ACEC, Alternatives B and C propose to "[m]aintain 3 cfs in the South Fork of Mill Creek below the Shelly diversion." *See* p. 2-37. Please explain whether BLM possesses a water right applicable to this area, how BLM would maintain this level of flow at the Shelly diversion, how it would prevent appropriation of instream flows below this point, and who would hold instream flow rights.

Riparian and Wetland Resources:

The BLM desires to maintain, protect, restore, and (in some cases) enhance riparian and wetland areas to proper functioning conditions and achieve an appropriate vegetative community. While the State does not object to the maintenance, protection, and restoration of these areas, the State Engineer (Water) is concerned that enhancement of these areas may pose a water rights problem.

The enhancement of riparian and wetland areas will increase the depletion of water within the Moab FO. The holders of senior water rights, who will have less water to divert, will ultimately experience this increased depletion because of changes in historic water use patterns. This will be experienced mostly in the late summer months when the highest consumptive use of water by restored and enhanced vegetation coincides with the greatest need for irrigation water.

The State Engineer requests the BLM modify its goal to require mitigation of any increased water depletion that may result from its activities. Such mitigation may require the acquisition and change of a valid existing water right. As part of a mitigation effort, it is suggested the BLM consider the institution of a program to eradicate tamarisk and other highly water consumptive, non-native species and their replacement with native species. Water required for any enhancement effort will need to be obtained in accordance with Utah law.

Water Quality:

The Utah Division of Water Quality has worked closely with the BLM to develop TMDLs for impaired surface waters in or near Moab. The Division recognizes the efforts that BLM has made to protect water quality and appreciates the work that has been done to this point.

Uncontrolled recreational use may have direct impacts on the water quality of Mill Creek, Ken's Lake and Onion Creek. In Mill Creek, the temperature exceeds 20° Celsius standard during summer months as a result of solar heating, low flows and degraded riparian condition. The following practices have been identified in the TMDL that would reduce Mill Creek water temperatures to bring conditions into compliance with the standard for Class 3A waters as identified by the TMDL. We encourage BLM to incorporate these practices in the Final RMP:

1. Provide higher stream flows during summer. At a minimum this should include maintaining the BLM required 3 cfs flow immediately below the

diversion to Ken's Lake. (See State comment regarding whether BLM's has authority to set or hold minimum stream flows.)

2. Increase water depth by narrowing the stream channel with restoration techniques involving use of heavy equipment (bottom 14 miles).

3. Plant and protect riparian vegetation to increase shading a minimum of 11 percent (control tamarisk, restore natives in the bottom 14 miles) to attain water quality standard.

Onion Creek is impaired for temperature. To attain a temperature reduction in Onion Creek, the TMDL recommends restricted access to the stream channel by off road vehicles (ATV's, 4X4 vehicles, etc.) and riparian restoration to facilitate canopy cover. To restore the beneficial use in the creek a more protective alternative than those described by the BLM/ Moab RMP may be required.

Ken's Lake is protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain. It is impaired for temperature. The protection of riparian vegetation may improve conditions around the lake.

The state strongly recommends that appropriate Best Management Practices be included in the BLM/Moab RMP that may result in a more protective alternative selected near impaired waterbodies to regain beneficial uses and protect aquatic organisms. Continue to investigate the elimination or minimization of stream crossings where practical.

In addition, monitoring should be defined for this plan, including the water quality parameters and biological parameters that will be monitored, the entity that will be responsible for monitoring the water quality and any indirect or cumulative impacts related to water quality and mitigation steps identified that will be taken if impacts are realized. Synoptic monitoring during recreation events would help provide data of the impacts. The DWQ staff can assist in developing a water quality protection plan for impaired waters of the State.

ATTACHMENT B

ATTACHMENT B

Utah Public Lands Study – Key Social Survey Findings for Grand and San Juan Counties

A statewide social survey was conducted by Utah State University in 2007 to assess the ways in which Utah residents use and value public land resources, and their views about public land management. Random samples of residential households were selected in each of the state's 29 counties. Sampled households were contacted by mail, and a randomly-selected adult from the household was asked to participate in the survey. Self-completion questionnaires were distributed to potential survey participants using a multiple-wave survey administration procedure. The discussion that follows is focused on key survey results obtained for Grand County (n = 146 survey responses) and for San Juan County (n = 124 survey responses).

Economic Linkages to Public Lands

One major focus of the survey questionnaire involved assessment of the various ways in which Utahans' may engage in economic activities that are linked directly or indirectly to public land resources in the state.

Permit-Based Economic Activities

As indicated in Table 1, only a minority of survey respondents in either Grand or San Juan Counties reported that a portion of their household income is directly linked to activities that involve permitted uses of lands or resources administered by the U.S. Forest Service, the Bureau of Land Management (BLM), other federal agencies, or the State of Utah. In both counties permit-based economic activities on public lands were more commonly linked to lands administered by the BLM than lands administered by other agencies. In addition, the percentage of respondents indicating that some portion of their household incomes is derived from such permit-based activities was uniformly higher for each of the agency categories in San Juan County than was the case in Grand County.

Table 1. Percentage of survey respondents reporting that a portion of household income is directly linked to permitted use of public lands or resources.

Agency	Grand County	San Juan County
Forest Service	4.1%	13.9%
BLM	11.0%	18.9%
Other federal agency	8.2%	7.4%
State of Utah	6.2%	11.5%
Number of cases	146	124

As indicated in Table 2, the percentage of respondents reporting these types of permit-based economic linkages to public lands who indicated that 25% or more of their total household income is derived from those activities was highest among Grand County respondents who reported use of BLM, other federal agency, and State-administered lands, and highest among San Juan County respondents who reported use of lands administered by federal agencies other than the Forest Service or BLM, or of lands administered by the State of Utah.

Table 2. Percentage of survey respondents reporting permit-based economic activities on public lands who indicated that 25% or more of their household income is derived from those activities.

Agency	Grand County	San Juan County
Forest Service	16.7%	23.5%
BLM	50.0%	29.2%
Other federal agency	53.8%	55.6%
State of Utah	45.5%	42.9%

Household Participation in Selected Commercial Activities

The next series of questions asked respondents to indicate whether they or members of their households participate in any of a number of commercial activities that, while commonly associated with public land use, can involve the use of either public or private lands. Results summarized in Table 3 indicate that for any of these activities only a minority of survey respondents in either Grand County or San Juan County reported participation. Among Grand County respondents, the activities reported most frequently were operation of an outfitting or guiding business (9.7% of respondents), other miscellaneous commercial activities (5.2%), and mining of coal, uranium or other minerals (4.9%). In San Juan County participation was reported most frequently for livestock grazing and related work (20.2% of respondents), commercial firewood cutting (17.6%), logging and other timber-related work (11.8%), mining of coal, uranium or other minerals (10.1%), and oil and gas exploration or development (9.2%). On balance, these response patterns indicate that there is a substantially higher level of engagement in nearly all of these types of resource-based commercial activities among residents of San Juan County than is the case in Grand County.

Table 3. Percentage of survey respondents reporting that they or members of their households participate in selected resource-based commercial activities, on either public or private lands.

Economic Activity	Grand County	San Juan County
Livestock grazing and related work	2.8%	20.2%
Commercial firewood cutting	1.4%	17.6%
Logging, post & pole cutting, or other timber-related work	1.4%	11.8%
Mining of coal, uranium or other solid minerals	4.9%	8.5%
Mining of sand, gravel, or other construction materials	2.8%	10.1%
Oil and gas exploration and development	2.8%	9.2%
Operating an outfitting or guiding business	9.7%	6.8%
Film making/commercial Photography	3.5%	5.9%
Other commercial activities	5.2%	3.5%

Household Involvement in Businesses Linked to Recreation/Tourism

Survey respondents were also asked whether they or any member of their household operates or works at a business linked to recreation or tourism activity that is influenced by the presence of public lands and resources. Over one-third (38.5%) of Grand County respondents and over one-fourth (26.7%) of San Juan County respondents said "yes" to this question. When asked to assess how important activities and uses linked to public lands are to the success of this business, nearly two thirds (63.6%) of Grand County respondents and over one-half (53.1%) of San Juan County respondents who reported involvement in such businesses said that the influence of public lands is "extremely important."

Household Involvement in Businesses Linked to Commodity Production

A similar question asked about the involvement of survey participants and members of their households in business that provide services and supplies to farming or ranching operations, logging firms, or other commercial enterprises that use or process natural resources located on public lands. The percentage of respondents reporting participation by a household member in such businesses was considerably lower in Grand County (6.9%) than in San Juan County (15.7%).

Ownership of Property or Assets With Values Influenced by Nearby Public Lands

When asked whether they own land, buildings, or other assets that they believe have a monetary value that is significantly influenced by the presence and condition of nearby public lands, 55.2% of Grand County respondents and 40% of San Juan County respondents said "yes." Those who did perceive the existence of such a relationship were then asked to identify specific types of assets that they own and that they believe have a value influenced by the close proximity of public lands. Respondents in both counties most frequently cited their residential property, (48.6% in Grand County, 27.4% in San Juan County). The only other types of asset identified by more than 10% of respondents in either county were undeveloped non-agricultural land (12.1% of respondents in San Juan County) and agricultural land (12.7% of respondents in San Juan County).

Perceived Importance of Public Lands for Overall Quality of Life

Survey participants were also asked to report how important they think fifteen different types of public land resources and resource uses are for the overall quality of life experienced by people living in their communities. Table 4 summarizes response patterns to this series of questions for Grand and San Juan Counties, with a focus on the percentage of respondents from each county who indicated that they consider a particular type of resource use to be "very important" for local quality of life.

In Grand County six of the fifteen types of public land resource use presented in this question were considered "very important" by fewer than one-half of respondents (grazing of livestock,

Table 4. Percentage of survey respondents indicating that selected public land resource uses are "very important" to the overall quality of life in their community.

Resource Use	Grand County	San Juan County
Grazing of livestock on public lands	34.6%	74.4%
Water resources used to irrigate crops and pastures	64.0%	89.8%
Water resources used to supply homes and businesses	83.6%	94.1%
Water resources that provide important fish/wildlife habitat	82.0%	76.9%
Energy resources such as oil, gas, coal or uranium	48.2%	72.0%
Sand, gravel or other minerals used in building and construction industries	28.8%	53.0%
Forested areas that provide timber used by logging operations and lumber mills	21.3%	33.0%
Areas where trees or other vegetation provide important wildlife habitat	73.9%	74.4%
Areas that attract tourism and recreational activity	78.8%	61.0%
Opportunities to enjoy off-road vehicles, snowmobiling, or other motorized recreation	62.1%	70.3%
Opportunities to enjoy hiking, backpacking, cross-country skiing, horseback riding, or other types of non-motorized recreation	74.3%	65.3%
Opportunities to hunt for wild game	41.3%	66.6%
Opportunities to fish in area lakes, streams and rivers	47.9%	58.5%
Undeveloped landscapes where motorized access and resource development are restricted	56.9%	30.7%
Areas managed to maintain biodiversity and protect habitat for sensitive or important plants or wildlife	54.4%	28.1%

energy resource development, sand/gravel or other construction-related mineral development, timber production, opportunities to hunt, and opportunities to fish). At the same time, over three-fourths of Grand County respondents considered water resources used to supply homes and businesses, water resources used to supply fish and wildlife habitat, and the presence of areas that attract tourism and recreation activity to be "very important" to the local quality of life.

In San Juan County only three of these resource uses were considered "very important" by fewer than one-half of respondents (timber production, undeveloped landscapes where motorized access and resource development are restricted, and areas managed to maintain biodiversity and to protect habitat). Conversely, three resource uses -- water resources used to irrigate crops and pastures, water resources used to supply homes and businesses, and water resources used to provide important fish and wildlife habitat -- were considered "very important" to the local quality of life by more than three-fourths of San Juan County respondents.

Recreational Uses of Public Lands

Survey participants were also asked to report whether they had participated in any of a broad range of outdoor recreation activities and other non-commodity use activities on Utah public lands during the prior twelve months. Results from this series of questions are reported in Table 5 and Table 6. These findings clearly indicate that there is widespread participation in many of these public land activities among residents of both Grand County and San Juan County.

Table 5 reports the extent of reported participation in thirty different outdoor recreation activities. Among survey participants living in Grand County, more than one-half reported participation in camping, picnicking, day hiking, wildlife viewing, visiting historical sites, 4-wheel driving, and driving for pleasure/sightseeing on public lands during the preceding twelve months. In San Juan County over half of respondents reported that they had participated in camping, picnicking, day hiking, wildlife viewing, hunting, fishing, visiting historical sites, , ATV riding, 4-wheel driving, and driving for pleasure/sightseeing.

Responses to a question focusing on participation in a variety of non-commodity use activities on public lands are summarized in Table 6. Among this list of activities, Grand County respondents were most likely to report that they participate in collection of rocks for home landscaping and collecting fossils, rocks or other minerals from public land areas. In San Juan County, respondents most frequently reported that they collect firewood for home use, collect rocks for home landscaping, and gather pinyon nuts from public lands.

Respondents were also asked to identify the one or two activities from the lists presented in these questions that they participate in most often, and to provide detail on where they engage in those activities. Among Grand County respondents the first of these activities listed by respondents most often involved day hiking (27.8% of responses) or camping (18.8% of responses). In San Juan County the first listed activity most often involved ATV riding (21.2% of responses), camping (13.6%), day hiking (12.7%) or hunting (11.9%). When asked to indicate where they participate in the first-listed of their "most frequently pursued" activities, 81.8% of Grand County respondents and 97.5% of San Juan County residents identified a location within the county where they live.

Table 5. Percentage of survey respondents reporting participation in selected recreation activities on Utah public lands during the past twelve months.

Activity	Grand County	San Juan County
Camping	67.4%	72.7%
Picnicking	77.1%	84.4%
Backpacking	30.4%	29.6%
Day hiking	72.4%	70.0%
Bird watching	35.8%	37.2%
Wildlife viewing	67.4%	80.2%
Nature photography	42.3%	41.2%
Canoeing/kayaking	23.5%	10.8%
River rafting	33.1%	9.1%
Motor boating	19.4%	20.4%
Jet skiing	5.9%	8.2%
Swimming	39.0%	36.3%
Rock climbing	18.4%	21.4%
Mountain climbing	22.2%	22.8%
Hang gliding	0.0%	0.0%
Mountain bike riding	33.3%	17.7%
Hunting	25.0%	55.1%
Fishing	43.3%	50.4%
Horseback riding	15.6%	33.0%
Orienteering/geo-caching	7.5%	15.7%
Rock hounding	39.3%	33.6%
Visiting historical sites	62.9%	68.9%
Resort skiing/snowboarding	7.5%	3.7%
Backcountry skiing/snowboarding	19.1%	4.6%
Snowshoeing	9.6%	4.5%
Snowmobiling	7.4%	8.9%
ATV riding	29.5%	65.0%
Dirt bike riding	16.5%	20.4%
4-wheel driving/jeeping	51.1%	60.2%
Sightseeing/pleasure driving	83.2%	87.9%

Table 6. Percentage of survey respondents reporting participation in selected non-commodity use activities on Utah public lands during the past twelve months.

Activity	Grand County	San Juan County
Collecting firewood for home use	25.9%	47.5%
Cutting Christmas trees	19.9%	29.4%
Collecting material for craft projects	22.0%	29.1%
Collecting rocks for home landscaping	42.7%	46.6%
Collecting plants for home landscaping	12.1%	20.0%
Gathering wild mushrooms	7.9%	4.5%
Gathering pinyon nuts	13.6%	47.5%
Gathering berries, herbs or wild foods	15.0%	13.4%
Collecting fossils, rocks or minerals	34.7%	28.0%

Attitudes and Preferences Regarding Public Land Management

Two similar sets of survey questions focused on respondents' attitudes and preferences regarding the extent to which various natural resource use activities or management practices should be reduced or increased by those responsible for managing public lands in Utah. Response patterns to these questions are summarized in Table 7 and Table 8.

The data presented in Table 7 indicate that Grand County respondents were considerably more likely to prefer an increase rather than a decrease in protection of important fish and wildlife habitat, protection of endangered species, use of controlled burns to improve ecological conditions, thinning of forested areas to reduce wildfire risk, designation of wild and scenic rivers, and development of water storage and delivery systems on Utah public lands. They were also more likely to prefer a reduction in timber harvest levels and in livestock grazing levels. On the other hand, attitudes were more evenly split between preferences for reducing and preferences for increasing mineral exploration/extraction and for designation of wilderness areas. Among San Juan County residents respondents were more likely to prefer an increase rather than a decrease in mineral exploration/extraction, timber harvest, oil and gas development, protection of fish and wildlife habitat, use of controlled burns to improve ecological conditions, livestock grazing, and development of water storage and delivery systems. They also expressed a strong preference for a reduction in the designation of wilderness areas, and were more likely to prefer a reduction as opposed to an increase in designation of wild and scenic rivers.

Results summarized in Table 8 indicate that Grand County respondents were more likely to prefer an increase rather than a reduction in permitting of commercial guiding or outfitter services, provision of road access to recreation areas, provision of hunting opportunities, development of trails for non-motorized recreation, regulations that restrict motorized vehicles to designated trails, and regulations to limit noise and emissions from snowmobiles and ATVs. More evenly mixed attitudes were evident with respect to development of trails for off-highway motorized recreation, and for development of visitor facilities to increase tourism. In San Juan County, respondents were far more likely to prefer an increase rather than a decrease in provision of road access to recreation areas, provision of hunting opportunities, development of trails for off-highway motorized recreation, and development of trails for non-motorized recreation.

Table 7. Survey respondents' attitudes regarding the extent to which various activities occurring on Utah public land should be reduced or increased.*

Type of use/activity	Grand County Reduce	Grand County Increase	San Juan County Reduce	San Juan County Increase
Mineral exploration/extraction	28.5%	37.2%	17.2%	58.7%
Timber harvest	37.4%	15.2%	15.8%	47.4%
Designation of wilderness areas	34.3%	33.6%	63.9%	15.1%
Exploration for/development of oil and gas resources	33.8%	41.2%	15.5%	53.5%
Protection of important fish and wildlife habitat	6.6%	61.4%	13.7%	41.9%
Protection of endangered species	17.4%	50.7%	30.8%	26.5%
Use of controlled burns to improve ecological conditions	13.8%	48.7%	13.4%	46.4%
Thinning of forested areas to reduce wildfire risk	15.1%	52.3%	5.3%	60.2%
Livestock grazing	36.2%	23.9%	13.8%	39.6%
Designation of wild and scenic rivers	18.4%	40.4%	32.1%	17.5%
Developing water storage and delivery systems to meet needs of nearby communities	11.9%	63.5%	1.7%	86.4%

* Original response categories were "major reduction" and "moderate reduction" (combined to create "reduce") and "major increase" and "minor increase" (combined to create "increase"). "Stay about the same" responses not reported here.

Table 8. Survey respondents' attitudes regarding the extent to which the emphasis placed on various activities occurring on Utah public land should be reduced or increased by public land managers.*

Type of use/activity	Grand County Reduce	Grand County Increase	San Juan County Reduce	San Juan County Increase
Permitting of commercial guiding or outfitter services	12.8%	21.2%	22.5%	21.6%
Providing road access to recreation areas	19.7%	33.1%	11.7%	61.7%
Providing hunting opportunities	17.9%	27.2%	10.2%	50.8%
Developing trails for off-highway motorized recreation	28.4%	34.1%	15.3%	61.0%
Developing trails for hiking, biking, and other non-motorized recreation	7.1%	53.9%	12.0%	46.1%
Regulations that require motorized vehicles to stay on designated trails	10.6%	62.0%	26.3%	37.3%
Regulations that limit levels of noise and emissions from snowmobiles and ATVs	10.1%	59.0%	33.3%	26.5%
Developing visitor facilities to increase tourism	21.4%	35.0%	20.9%	32.2%

* Original response categories were "major reduction" and "moderate reduction" (combined to create "reduce") and "major increase" and "minor increase" (combined to create "increase"). "Stay about the same" responses not reported here.

ATTACHMENT C

ATTACHMENT C

The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry Phase I - The Uinta Basin

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List of Acronyms & Abbreviations

BCF	Billion Cubic Feet
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
DOGM	Utah Division of Oil, Gas and Mining
E&P	Exploration and Production
IPAMS	Independent Petroleum Association of the Mountain States
MCF	Thousand Cubic Feet
MMCF	Million Cubic Feet
NAICS	North American Industry Classification System
NYMEX	New York Mercantile Exchange
PADD	Petroleum Administration for Defense District
SIC	Standard Industrial Codes
SITLA	School and Institutional Trust Lands Administration
RIMS II	Regional Input-Output Modeling System
UDOT	Utah Department of Transportation
USFS	U.S. Forest Service
WTI	West Texas Intermediate Crude

The Structure and Economic Impact of Utah's Oil and Gas Industry

1 Executive Summary

The Bureau of Economic and Business Research at the University of Utah has completed an economic impact study of the oil and gas exploration and production industry in the Uinta Basin in eastern Utah. The Uinta Basin, comprising Duchesne and Uintah Counties, is the center of the oil and gas industry in Utah. Rapidly rising energy prices in recent years have stimulated greater production of both crude oil and natural gas in the northern Rocky Mountains, and the Uinta Basin is an integral part of the oil and gas industry in the Rocky Mountain area. The 2006 crude oil production in the Uinta Basin of 11.4 million barrels was a 55 percent increase over a recent low of 7.3 million barrels in 2002. Natural gas production in the area has steadily increased over the past 10 years and reached an all-time high of 226 BCF in 2006.

The rise in oil and gas activity is causing an economic boom in the Uinta Basin. During 2006, the oil and gas exploration and production industry was directly responsible for 19.9 percent of employment and 34.8 percent of total wages in the Uinta Basin. When including indirect and induced impacts due to company and employee spending, the oil and gas industry accounted for 49.5 percent of employment and 60.1 percent of total wages paid in the Uinta Basin during 2006.

The industry also has a sizeable fiscal impact on local governments in the Uinta Basin. Property taxes paid on producing oil and gas wells were $18.2 million in 2006 and accounted for 38.7 percent of all property taxes paid in the two counties. Federal mineral royalties distributed to the two counties by the Utah Department of Transportation during 2006 amounted to $30.3 million.

2 Background

The recent rise in the price of gasoline has refocused attention on the energy markets with attention not seen since the collapse of oil prices in the mid 1980s. In contrast to the energy shortage of the 1970s, which was largely driven by constrained supply due to geopolitical issues, the recent runup is a result of increasing demand and decreasing supply from aging fields. Crude oil, and to a lesser extent natural gas, is a worldwide commodity with international supply and demand factors determining prices. Consumption of petroleum products is up worldwide, with developing countries driving the increase. Consumption of petroleum in China was up over 30 percent from 2002 to 2006. This rise in demand for petroleum products has resulted in a dramatic increase in the nominal price of crude oil (Figure 1).

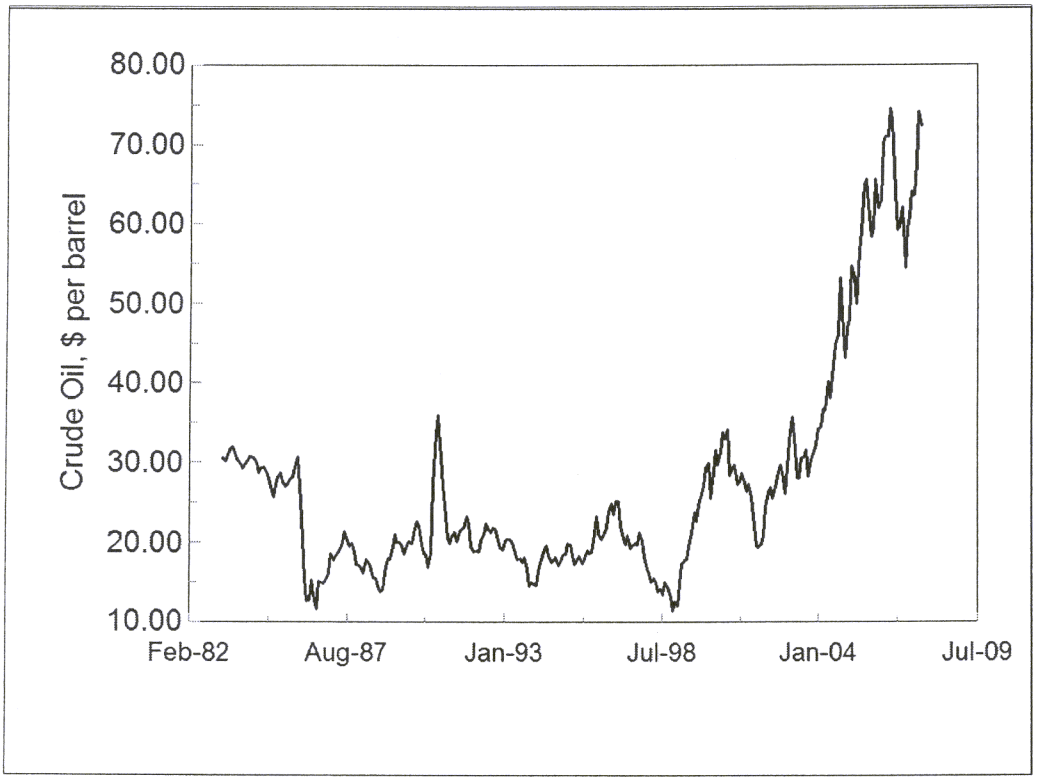

Figure 1 **Crude Oil Price: NYMEX Near Month Contract for Light Sweet Crude**
Source: Energy Information Administration

The price of crude oil was relatively flat during the 1990s with prices in the $20 to $30 range. Then, from a low of $11.31 per barrel in December 1998, crude oil increased to over $70 per barrel in April 2006 and reached $79.63 in September

2007. Forecasts expect the crude oil price to remain near current levels in the future. In September 2007 the Energy Information Administration forecast the price of West Texas Intermediate Crude[1] would remain over $71 per barrel through the end of 2008.

At the same time, natural gas prices have increased from historically low values in the late 1990s to a current price of about $7 per mcf, with increased volatility in recent years (Figure 2). Natural gas is more of regional commodity than crude oil, with more dependence on local supply and demand factors. The necessity of transporting natural gas by pipeline results in availability of transportation infrastructure having a large influence on natural gas prices. Currently, there is a shortage of pipeline capacity in the Rocky Mountains and wellhead natural gas prices in the area are depressed compared to the rest of the country.

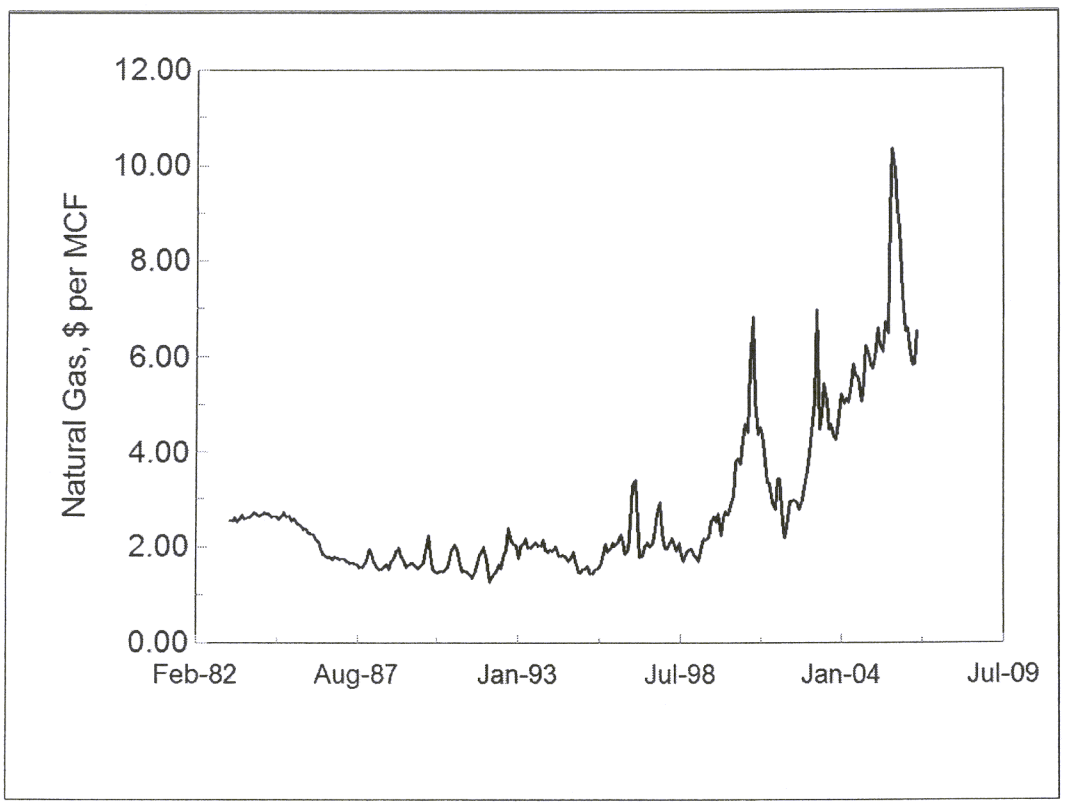

Figure 2 **Average U.S. Wellhead Price of Natural Gas**
Source: Energy Information Administration

[1]West Texas Intermediate (WTI) refers to a crude stream produced in Texas and Oklahoma that is the most common reference or "marker" for pricing crude oil and, along with several other domestic and foreign crude streams, is acceptable for settling New York Mercantile Exchange contracts for light, sweet crude oil.

While increased demand in the Pacific Rim has driven petroleum prices, demand has also increased in the U.S. Domestic crude oil production has declined from a high value of 3.5 billion barrels in 1970 to 1.9 billion barrels in 2006. Even with additional drilling in response to higher prices, domestic crude oil production is dropping due to geologic constraints. The Rocky Mountain states are the only area in the country currently experiencing significant increases in production of crude oil and natural gas. Of the five Petroleum Administration for Defense Districts (PADD) (Figure 3) used for analyzing petroleum data, crude oil and natural gas production are increasing only in PADD I (the East Coast) and in PADD IV (the Rocky Mountains).

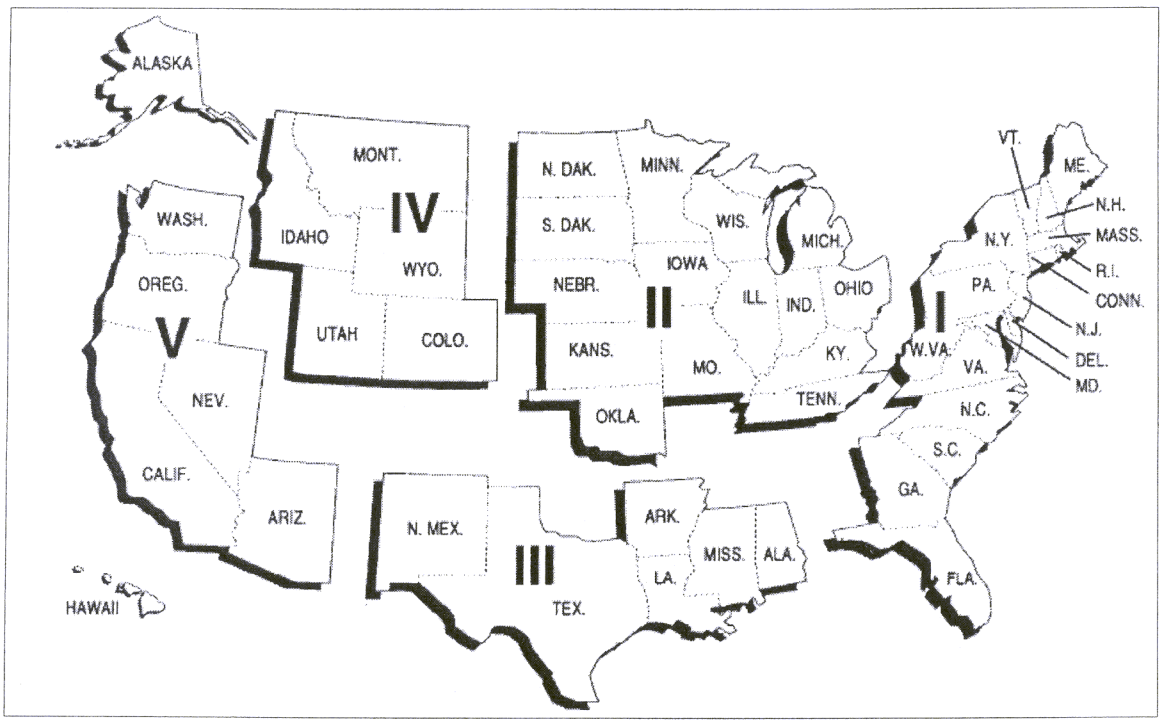

Figure 3 **Petroleum Administration for Defense Districts (PADD)**
Source: Energy Information Administration

The East Coast is responsible for less than one-half of one percent of domestic crude oil production and three percent of natural gas production. From 2002 to 2005, the amount of crude oil produced in the Rocky Mountains increased by 20.4 percent while production on the Gulf Coast (PADD III), the largest producing area in the country, dropped by 12.8 percent. The center for production of natural gas in the United States is also shifting from the Gulf Coast to the Rocky Mountains. In 1982, PADD III was responsible for 75.5 percent of U.S. natural gas production and PADD IV produced 4.2 percent. By 2005, the amount of domestic gas produced in PADD III had dropped to 62.5 percent of total production while the amount from

PADD IV had increased to 17.0 percent. Additionally, natural gas production in the Rocky Mountains is increasing approximately five percent annually. The increase in crude oil and natural gas production in the Rocky Mountain states is creating an economic boom in the producing areas.

Table 1 U.S. Crude Oil and Natural Gas Production by PADD, 2002-2005

	PADD I	PADD II	PADD III	PADD IV	PADD V	United States Total
Crude Oil, thousand barrels						
2002	7,458	164,635	1,174,305	102,982	947,745	2,097,124
2003	7,170	161,360	1,162,869	105,931	636,123	2,073,453
2004	6,941	159,309	1,103,743	113,069	600,239	1,983,302
2005	8,299	161,587	1,023,499	123,956	572,765	1,890,106
Percent Change, 2002-2005	11.3	(1.9)	(12.8)	20.4	(39.6)	(9.9)
Dry Natural Gas, MMCF						
2002	453,774	2,432,537	12,622,766	2,641,749	776,962	18,927,788
2003	521,824	2,336,271	12,662,381	2,797,202	780,866	19,098,544
2004	520,240	2,428,676	11,960,955	2,935,503	745,517	18,590,891
2005	522,997	2,413,736	11,298,362	3,075,234	763,907	18,074,237
Percent Change, 2002-2005	15.3	(0.8)	(10.5)	16.4	(1.7)	(4.5)

Source: Energy Information Administration

Despite the common perception of being vertically integrated, the oil and gas industry is highly fragmented, especially at the exploration and production stage. Many companies concentrate exclusively on oil and gas production and have no interest in downstream operations such as pipelines, refineries and product distribution. Additionally, much of the work conducted in the producing fields is contracted to other companies that specialize in different aspects of drilling and maintaining the wells. Few of the operating companies operate their own drill rigs but instead contract with companies that specialize in drilling. Other companies specialize in different operations such as grading well locations, well surveying, running and pulling well casings, cementing wells, and perforating well casings. The operating, drilling and service companies collectively constitute the oil and gas exploration and production industry.

Many other industries benefit from spending by the oil and gas industry. These include consulting geologists and engineering companies, environmental consultants, vendors of oil field equipment and pipeline and trucking companies. Spending by oil industry employees also benefits the local economy. These economic benefits beyond direct employment in the exploration and production industry are known as indirect and induced benefits, and are the source of the "multiplier" effect. This study examines the structure of the Utah oil and gas

exploration and production industry and the total economic impact on the producing areas.

3 Utah's Oil and Gas Industry

The Utah oil and gas industry started in 1891, when a water well being drilled in Farmington Bay near the Great Salt Lake encountered natural gas at a depth of 1,000 feet. Gas from several wells in this area was transported to Salt Lake City through wooden pipelines for several years until shifting sand in the lakebed plugged the wells. The first oil was found in the early 1900s near Rozel Point at the north end of the Great Salt Lake, near Mexican Hat in southeastern Utah and near the town of Virgin in southwestern Utah. The first large-scale commercial oil well was drilled near Vernal in 1948. Since the early 1960s, Utah has consistently ranked in the top 15 oil-producing states and in recent years has experienced a dramatic rise in natural gas production. During 2005, Utah ranked 15th in crude oil production out of 31 states and two Federal Offshore Areas and 11th in dry natural gas production out of 33 states and the Federal Offshore Area in the Gulf of Mexico.

Utah is contributing to the recent growth in crude oil and natural gas production taking place in the Rocky Mountain states (PADD IV). The state's 2006 crude oil production of 17.9 million barrels was a 37 percent increase over the recent low of 13.1 million barrels produced in 2003 (Figure 4). Although a substantial increase from the recent past, 2006's output was still only 44 percent of the all-time high of 41.1 million barrels produced in 1985.

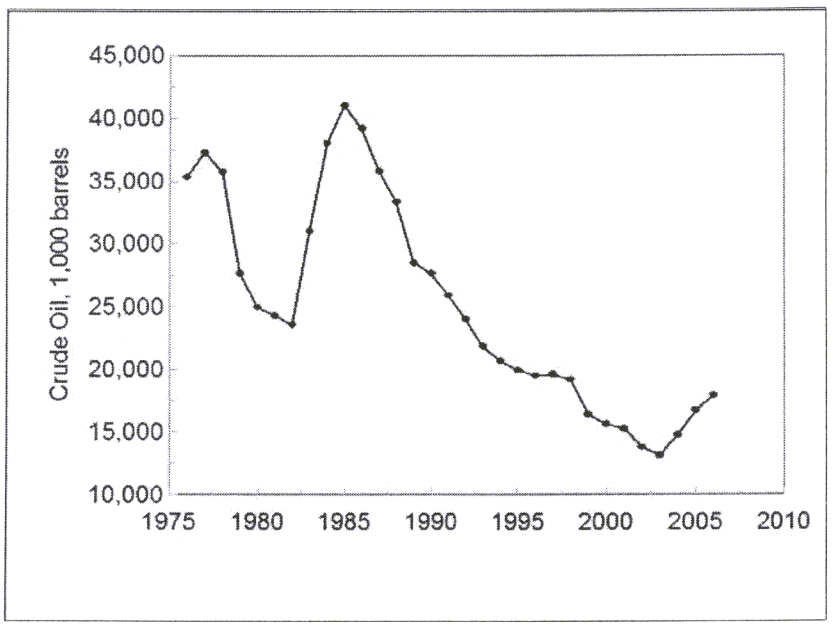

Figure 4 **Utah Crude Oil Production**
Source: Utah Division of Oil, Gas and Mining

There has been a similar rise in natural gas production in Utah. In 2006, Utah's marketed natural gas production hit an all-time high of 343 BCF, up 502 percent from 57 BCF in 1976.

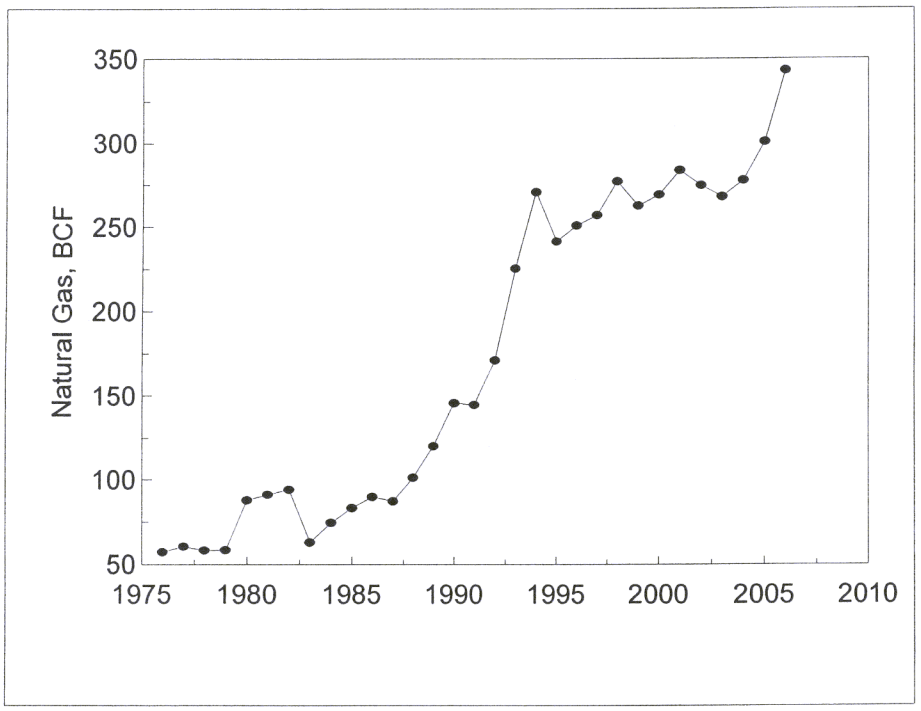

Figure 5 **Utah Marketed Natural Gas Production**
Source: Utah Geological Survey

Not all gross withdrawals of natural gas are marketed to consumers. Low prices of natural gas during the late 1980s and early 1990s resulted in much of the gas produced in Utah at the time not being marketable. A large portion of the gas withdrawn from wells in Utah during this period was reinjected into the geologic formations to maintain pressure and oil production. The amount of gas used for repressuring in Utah reached a high in 1983, when 65 percent of gross withdrawals were reinjected to maintain pressure. Currently, approximately 95 percent of natural gas withdrawals in Utah are marketed. Most of the gas that is not marketed is used for fuel at the production site or is accounted for by nonhydrocarbon gases that are removed from the production stream prior to marketing.

Average production per well of both crude oil and natural gas has been declining in Utah, so additional drilling will have to continue to maintain production at current levels. Although natural gas production has been steadily rising and crude oil production in Utah has rebounded in recent years, production per individual well has been declining. Natural gas production per gas well peaked at 740 MMCF per gas

well in 1962. Natural gas production per gas well steadily declined to 67 MMCF per well in 2000 before rising to 84 MMCF per well in 2006. Similarly, crude oil production per oil well peaked at 57,330 barrels per well in 1959 and dropped to 6,727 barrels per well in 2003. Crude oil production per well in Utah was 7,308 barrels during 2006.

During 2006, 129 different operating companies reported crude oil and natural gas production to the Utah Division of Oil, Gas and Mining. Production occurred in 11 of Utah's 29 counties. Duchesne County had the highest oil production with 6,401,299 barrels while Uintah County led natural gas production with gross withdrawals of 203,522,421 MCF.

Six different areas in Utah currently have significant production of oil or natural gas. These areas are defined by geology. Additionally, these areas are somewhat isolated from one another economically, especially in terms of the oil and gas exploration and production (E&P) industry. The major oil and gas producing area in Utah is the Uinta Basin in the northeastern part of the state. Vernal is a center of the oil and gas industry in the Uinta Basin with many of the producing, drilling and service companies maintaining offices in the area. Other producing areas in Utah include coalbed methane plays in Carbon and Emery Counties, the Paradox Basin in San Juan County, the Uncompahgre Uplift in Grand County, the Thrust Belt in Summit County and the recently discovered Hingeline in the central part of the state.

The Paradox Basin, Uncompahgre Uplift, and Thrust Belts all extend over state lines to adjacent states. Many of the workers involved in operating wells in these areas are actually employed in other states. Coalbed methane operations in Carbon and Emery Counties and the Hingeline are fairly recent discoveries and an oil service industry has not developed in these areas.

Defining the oil and gas E&P industry is a key element for a study of this type. Economists use the North American Industry Classification System (NAICS) developed by the Office of Management and Budget for classifying industries for reporting employment and earnings. The NAICS codes are divided into 20 major industrial sectors. These major sectors are then further subdivided as necessary.

The NAICS codes have three industrial classifications that directly apply to the oil and gas E&P industry. These are NAICS 211 - Oil and Gas Extraction, NAICS 213111 - Drilling Oil and Gas Wells, and NAICS 213112 - Support Activities for Oil and Gas Operations. For purposes of this study, these three industries are collectively considered the oil and gas E&P industry. Additional information on the NAICS codes for these three industries is available in Section 6.

The following section summarize oil and gas production in Duchesne and Uintah Counties. Also included are economic data for Duchesne and Uintah Counties to place the oil and gas E&P industry in context.

3.1 Uinta Basin

The Uinta Basin in northeastern Utah is the largest oil and gas producing area in the state and a significant producer in the Rocky Mountains. Natural gas was first discovered in economic quantities in the Uinta Basin in 1925 at the Ashley Valley field. In 1949, oil was discovered in the Roosevelt field. Natural gas and crude oil have been produced in the Uinta Basin since then, although production and the accompanying economic impact have varied with prices. The Uinta Basin is currently experiencing a significant economic boom due to increased oil and gas activity. This boom should continue as long as energy prices remain at current or higher levels.

Although the geologic area defined as the Uinta Basin extends into Colorado and includes portions of several other Utah counties (Carbon, Emery, Grand, Wasatch, and Utah), this study focuses on Duchesne and Uintah Counties, Utah. Economic data is released at the county level and almost all of the economic activity associated with E&P activities in the Uinta Basin occurs in these two counties. For this study, the term Uinta Basin refers to Duchesne and Uintah Counties, collectively unless otherwise indicated.

The two counties contain just under five million acres (Table 2), with 54 percent of the land controlled by the federal government. After including land controlled by the state government and Indian lands, only 21.8 percent of the Uinta Basin is privately owned. With such a large portion of the land controlled by the federal government, the oil and gas E&P industry is highly sensitive to changes in federal land management policy. The largest amount of federal land in the Uinta Basin is controlled by the Bureau of Land Management, which is responsible for 32.7 percent of the land in the two counties. An additional 14.6 percent is administered by the U.S. Forest Service. Lesser amounts are controlled by the U.S. Fish and Wildlife Service and the National Park Service.

The majority of the state land in the basin is controlled by the Utah School and Institutional Trust Lands Administration (SITLA). SITLA administers six percent of the land in the two counties. Lesser amounts are controlled by the Utah Division of Wildlife Resources and the Utah Division of State Parks and Recreation. Indian lands make up 16 percent of the Uinta Basin.

Table 2 Land Ownership in the Uinta Basin

	Duchesne County, acres	Uintah County, acres	Uinta Basin Total, acres	Percent of Total
Bureau of Land Management	206,552	1,411,944	1,618,496	32.7
US Forest Service	453,680	269,380	723,060	14.6
National Wildlife Refuge	0	8,975	8,975	0.2
USFS and BLM Wilderness	263,882	0	263,882	5.3
National Park Service	0	50,682	50,682	1.0
Total Federal	924,115	1,740,981	2,665,096	53.9
State Parks	3,723	956	4,679	0.1
State Wildlife Lands	76,206	9,707	85,913	1.7
State Trust Lands	54,357	240,602	294,959	6.0
Total State Lands	134,287	251,264	385,551	7.8
Indian Lands	395,848	423,353	819,201	16.6
Private	614,070	461,646	1,075,716	21.8
Total	2,068,318	2,877,244	4,945,562	100.0

Source: Utah Governor's Office of Planning and Budget

Production of both crude oil and natural gas have increased in recent years in the Uinta Basin (Tables 3-4). From a low of 7.3 million barrels in 2002, crude oil production in the two counties increased to 11.4 million barrels in 2006. Production is rising faster in the Uinta Basin than in Utah as a whole. While crude oil production increased 55.5 percent in the basin from 2002 to 2006, production in the state as a whole increased by 30.2 percent. In 1997, 48.5 percent of the crude oil produced in Utah came out of the basin. By 2006, the amount of the state's crude oil production originating in the Uinta Basin had increased to 63.4 percent.

Table 3 Uinta Basin Crude Oil Production, 1997-2006

	Crude Oil, barrels			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
1997	6,358,598	3,147,423	9,506,021	19,592,548
1998	6,268,634	2,940,615	9,209,249	19,223,542
1999	4,697,532	2,637,875	7,335,407	16,376,521
2000	4,772,096	2,788,908	7,561,004	15,609,030
2001	4,980,167	3,195,205	8,175,372	15,273,926
2002	4,291,457	3,016,376	7,307,833	13,770,860
2003	4,341,306	3,069,047	7,410,353	13,098,424
2004	5,838,429	3,776,762	9,615,191	14,799,208
2005	6,670,272	4,371,478	11,041,750	16,675,302
2006	6,401,299	4,959,425	11,360,724	17,926,580
Percent of State Total, 2006	35.7	27.7	63.4	100.00

Source: Utah Division of Oil, Gas and Mining

The rise in natural gas production has been even more dramatic than that of crude oil. Over the past 10 years, gas production from the basin has steadily grown from 81 BCF in 1997 to 226 BCF in 2006, a 178 percent increase (Table 4). Uintah County has been the site of most of this growth. Production in Uintah County increased by 236 percent from 1997 to 2006, and the county was responsible for 57.1 percent of the natural gas produced in Utah during 2006.

Table 4 Uinta Basin Natural Gas Production (Gross Withdrawals), 1997-2006

	Natural Gas, MCF			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
1997	20,631,221	60,599,426	81,230,647	272,553,774
1998	19,204,848	70,621,273	89,826,121	297,503,246
1999	15,352,521	72,154,481	87,507,002	277,494,312
2000	13,934,444	83,100,193	97,034,637	281,170,016
2001	13,933,698	93,909,207	107,842,905	300,975,578
2002	12,476,159	104,385,705	116,861,864	293,030,004
2003	11,954,655	111,241,438	123,196,093	287,141,238
2004	14,641,315	132,454,516	147,095,831	293,735,994
2005	20,089,535	163,830,925	183,920,460	313,465,305
2006	22,525,615	203,522,421	226,048,036	356,361,028
Percent of State Total, 2006	6.32	57.11	63.43	100.0

Source: Utah Division of Oil, Gas and Mining

The rising production is reflected in increased drilling activity in Duchesne and Uintah Counties (Table 5). From a low of 150 oil and gas wells spudded in the basin during 1999, the number increased to 933 wells spudded in 2006. As with production, drilling activity in Utah is focused in the Uinta Basin During 2006, of a total of 1,056 oil and gas wells spudded in Utah, 88.3 percent were drilled in the Uinta Basin.

Table 5 Wells Spudded in the Uinta Basin, 1997-2006

	Wells Spudded			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
1997	160	154	314	430
1998	123	186	309	430
1999	10	140	150	283
2000	63	289	352	540
2001	74	386	460	627
2002	44	226	270	391
2003	89	333	422	480
2004	166	441	607	659
2005	183	569	752	889
2006	279	654	933	1,057
Percent of State Total, 2006	26.4	61.9	88.3	100.00

Source: Utah Division of Oil, Gas and Mining

While production of both crude oil and natural gas is increasing in the Uinta Basin, this increase must be placed in the context of the total economy for the two counties.

The Uinta Basin had an estimated 2006 population of 43,332, up 6.1 percent from 2002 (Table 6). Major cities included Vernal, with an estimated 2006 population of 8,163, Roosevelt (4,681), Duchesne (1,506) and Naples (1,502). The 2000 Decennial Census determined that 39.3 percent of the population lives in the two urban areas of Vernal and Roosevelt. The remainder of the two counties is not densely enough populated to be considered urban.[2] Although they contained almost 40 percent of the population of the two counties, the two urban areas account for only 0.18 percent of the land area in the Uinta Basin.

Table 6 Uinta Basin Population, 2002-2006

	Population			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
2002	14,856	25,984	40,840	2,358,330
2003	14,698	26,019	40,717	2,413,618
2004	14,933	26,224	41,157	2,469,230
2005	15,237	26,883	42,120	2,547,389
2006	15,585	27,747	43,332	2,615,129

Source: Utah Population Estimates Committee

[2]The Bureau of the Census defines urban areas as census blocks that have a population density of at least 1,000 persons per square mile and surrounding census blocks with a population density of 500 persons per square mile. Adjacent census blocks with a lower population density are also included if they meet additional criteria established by the Bureau of the Census.

The Uinta Basin is benefitting economically from the oil and gas boom; its unemployment rate has consistently been lower than the state average since August 2005. As energy prices have increased, employment in the Uinta Basin has risen, from approximately 14,500 persons in 1997 to over 25,000 persons in mid-2007 (Figure 6). The unemployment rate in the area has declined since the middle of 2002 after reaching a high of 10.1 percent in February 1999.

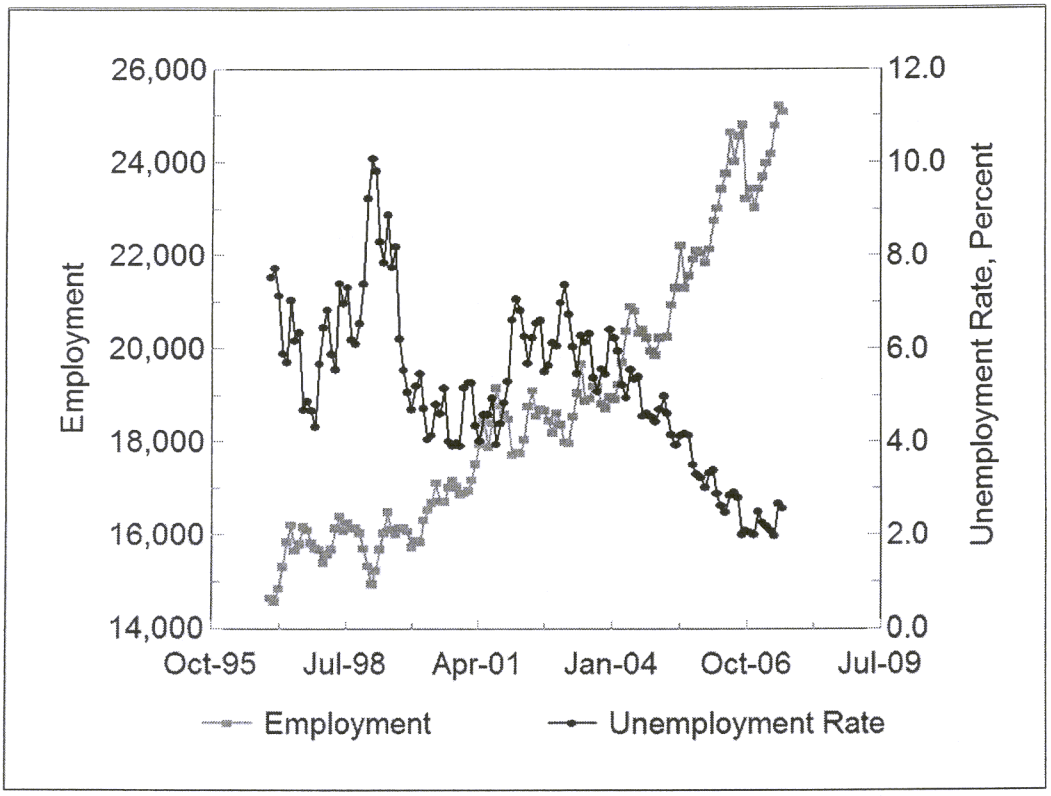

Figure 6 **Employment and the Unemployment Rate in the Uinta Basin**
Source: BLS, Local Area Unemployment Statistics

The industrial structure of the basin is significantly different from that of the state of Utah (Table 7). Mining, which includes oil and gas production, is responsible for over 20 percent of the employment in the Uinta Basin, compared with 0.9 percent of employment in Utah. The Uinta Basin is nearly 25 times more dependent on the mining industry for employment than is Utah as a whole, as indicated by a location quotient of 24.9[3]. While the majority of mining employment in the basin is due to oil and gas production, there are other mining operations present. Significant mining operations in the Uinta Basin other than oil and gas extraction are the SF

[3]Location Quotients are the ratio of an industry's share of employment in a study are, in this case the Uinta Basin, to its share in a reference area, e.g., the state of Utah.

Phosphates Ltd. mine north of Vernal and three gilsonite operations by American Gilsonite, Lexco, Inc., and Ziegler Mineral and Chemical. These other mining operations in the Uinta Basin employ an estimated 270 persons.

Other differences in industrial structure include a much lower reliance on Manufacturing and Educational Services for employment and a higher percentage of employment in Utilities, Transportation, Agriculture, Forestry, Fishing and Hunting, Real Estate and Government. The fairly high location quotient for Utilities, 2.60, is largely due to the presence of the Deseret Power Bonanza Power Plant south of Vernal. Transportation and Warehousing also has a high location quotient of 1.71. Much of the crude oil produced in the Uinta Basin contains a wax that solidifies below 105 F. This results in difficulties in shipping the crude oil to refineries via pipeline so the oil must be sent by tank truck. Government is commonly a significant employer in areas with large amounts of public land due to the presence of federal land-managing agencies.

Industries with low location quotients in the Uinta Basin include Manufacturing and Educational Services. Manufacturing has a location quotient of 0.18, indicating that the basin is only 18 percent as dependent on Manufacturing for employment as is the state of Utah. Similarly, the location quotient for Educational Services is 0.13, suggesting that there are few private educational facilities in the Uinta Basin.

Several major industries have employment data that is nondisclosable for Duchesne or Uintah Counties. This is done to protect individual company data. These industries are Management of Companies and Enterprises (NAICS 55), Administrative and Support Services (NAICS 56), Arts, Entertainment and Recreation (NAICS 71), and Accommodation and Food Services (NAICS 72). Since employment numbers are not available for these industries, location quotients can not be calculated. Data for these industries are included in the total employment figures.

Table 7 Employment by Industry in the Uinta Basin, 2006

	Duchesne County	Uintah County	Uinta Basin	Distribution, Percent	Location Quotient
Private Employment					
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	37	77	114	0.6	1.51
Mining (NAICS 21)	981	3,248	4,229	21.3	24.92
Utilities (NAICS 22)	44	134	178	0.9	2.60
Construction (NAICS 23)	645	834	1,479	7.5	0.92
Manufacturing (NAICS 31-32)	151	224	375	1.9	0.18
Wholesale Trade (NAICS 42)	129	532	661	3.3	0.87
Retail Trade (NAICS 44-45)	752	1,471	2,223	11.2	0.93
Transportation and Warehousing (NAICS 48-49)	522	718	1,240	6.2	1.71
Information (NAICS 51)	172	143	315	1.6	0.59
Finance and Insurance (NAICS 52)	119	180	299	1.5	0.33
Real Estate (NAICS 53)	51	352	403	2.0	1.35
Professional, Scientific and Technical Services (NAICS 54)	79	339	418	2.1	0.40
Management of Companies and Enterprises (NAICS 55)	ND	ND	ND	ND	ND
Administrative and Support (NAICS 56)	ND	ND	ND	ND	ND
Educational Services (NAICS 61)	20	22	42	0.2	0.13
Health Care (NAICS 62)	446	831	1,277	6.4	0.74
Arts, Entertainment and Recreation (NAICS 71)	ND	59	ND	ND	ND
Accommodation and Food Services (NAICS 72)	ND	883	ND	ND	ND
Other Services (NAICS 81)	157	344	501	2.5	1.01
Government Employment	1,716	2,577	4,293	21.6	1.32
Total Employment	6,560	13,292	19,852	100.0	1.00

ND: Not disclosed to protect individual company information. Data are included in the totals.
Source: BLS, Quarterly Census of Employment and Wages

Direct employment in the oil and gas E&P industry has been rising in recent years as increased production was stimulated by higher energy prices (Table 8). The employment for oil and gas extraction is not disclosed for Duchesne County to protect individual company data. However, employment for this industry is estimated at 452 individuals for 2006[4]. Estimated employment by the oil and gas E&P industry is therefore estimated at 974 persons in Duchesne County and was 2,985 persons in Uintah County during 2006. The direct employment of 3,959 persons in the oil and gas E&P industry accounts for 19.9 percent of the total 2006 employment of 19,852 persons in the Uinta Basin.

Table 8 Oil and Gas E&P Employment in the Uinta Basin, 2001-2006

	NAICS 211 Oil and Gas Extraction	NAICS 213111 Drilling Oil and Gas Wells	NAICS 213112 Support Activities for Oil and Gas Operations	Total Oil and Gas Direct Employment
Duchesne County				
2001	ND	138	223	GT 361
2002	ND	140	203	GT 343
2003	ND	57	205	GT 262
2004	ND	58	237	GT 295
2005	ND	68	307	GT 375
2006	ND	102	420	GT 522
Uintah County				
2001	68	368	940	1,376
2002	76	278	973	1,327
2003	181	441	943	1,564
2004	186	508	1,136	1,830
2005	206	587	1,461	2,254
2006	278	913	1,794	2,985

GT: Greater Than
ND: Not disclosable to protect individual company data.
Source: BLS, Quarterly Census of Employment and Wages

Total Uintah County employment in the three NAICS industries involved in oil and gas production increased by 117 percent from 2001 to 2006. Total employment for Duchesne County over time is difficult to discern due to employment for Oil and Gas Extraction (NAICS 211) not being nondisclosed. Duchesne County employment in

[4]For 2006, the BLS lists total Mining (NAICS 21) employment as 981. Of the three subcategories at the three-digit NAICS level, employment is nondisclosable for Oil and Gas Extraction (NAICS 211) and Mining, Other than Oil and Gas (NAICS 212). Employment for Support Activities for Mining (NAICS 213) is reported as 522. The Utah Department of Workforce Services reports only one firm, with an employment between 5 and 9 persons, in NAICS 212 operating in Duchesne County. By subtraction, employment for Oil and Gas Extraction is between 450 and 454 with an expected value of 452.

well drilling (NAICS 213111) and service companies (NAICS 213112) increased by 46 percent from 2001 to 2006. Well-drilling employment actually declined over the period, though it increased from 2003 to 2006. Well drilling employment can decrease in the Uinta Basin while actual drilling activity increases due to companies located outside of Utah drilling wells in the basin.

The large percentage rise in the number of operating company employees in Uintah County indicates increased industry focus on the Uinta Basin. From 2001 to 2006, the number of persons working for operating companies (NAICS 211) in Uintah County increased by 309 percent. Over the same time frame, the number of establishments in the industry in Uintah County increased from 7 to 12. This is the number of companies reporting employment in the county and does not correspond to the number of companies operating wells in the area. Since much of the work in operating the wells is contracted out to different companies, there are many companies that have wells in the Uinta Basin that do not have full-time employees in the area. Therefore, although only 12 operating companies reported employment in the area during 2006, 54 companies reported production to the Utah Division of Oil, Gas and Mining.

The lack of vertical integration in the E&P industry is demonstrated by the distribution of employment through the three industries involved in oil and gas production. Most of the direct employment in oil and gas production is actually in the oil services industry (NAICS 213112). This industry accounted for 56 percent of E&P employment in the Uinta Basin in 2006. The drilling companies (NAICS 213111) employed 26 percent of the persons working in E&P in the basin during 2006. The operating companies that own the wells and production were responsible for only 18 percent of oil and gas production employment in the Uinta Basin in 2006.

In addition to accounting for a large portion of employment in the Uinta Basin, mining also offers some of the highest paying jobs in the area (Table 9). In both Duchesne and Uintah Counties, Mining jobs pay approximately $63,000 per year on average. In the two counties, only Utilities in Uintah County pays a higher annual wage. The average Utility position in Uintah County paid $82,676 in 2006. This is a result of the Deseret Power Bonanza Power Plant located south of Vernal. For comparison, the average Utility job in Duchesne County paid $31,471 in 2006.

Mining jobs in the two counties pay significantly higher than the average wage in the area. In Duchesne County, the average mining job paid $63,057 during 2006, 83 percent greater than the average annual wage in the county of $34,538. Similarly, in Uintah County, the average person working in the mining industry earned $63,963 during 2006, 64 percent higher than the average wage in the county of $39,056.

The lowest paying private industries in the two counties are Agriculture, Forestry, Fishing and Hunting, Educational Services, Arts, Entertainment and Recreation and Accommodation and Food Services. Each of these industries pays an average wage of less than $20,000 annually in the Uintah Basin.

Table 9 Average Annual Wages by Industry in the Uinta Basin, 2006

	Duchesne County	Uintah County
Private Employment		
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	$18,232	$17,530
Mining (NAICS 21)	63,057	63,963
Utilities (NAICS 22)	31,471	82,676
Construction (NAICS 23)	34,223	32,423
Manufacturing (NAICS 31-32)	33,950	25,420
Wholesale Trade (NAICS 42)	43,791	45,875
Retail Trade (NAICS 44-45)	19,062	21,257
Transportation and Warehousing (NAICS 48-49)	51,961	55,044
Information (NAICS 51)	33,893	25,369
Finance and Insurance (NAICS 52)	26,983	32,425
Real Estate (NAICS 53)	19,385	56,548
Professional, Scientific and Technical Services (NAICS 54)	37,440	36,420
Management of Companies and Enterprises (NAICS 55)	ND	ND
Administrative and Support (NAICS 56)	ND	ND
Educational Services (NAICS 61)	3,604	17,603
Health Care (NAICS 62)	31,236	23,552
Arts, Entertainment and Recreation (NAICS 71)	ND	7,411
Accommodation and Food Services (NAICS 72)	ND	10,044
Other Services (NAICS 81)	26,803	27,602
Government Employment	28,618	31,983
All Employment	34,538	39,056

ND: Not disclosed to protect individual company information.
Source: BLS, Quarterly Census of Employment and Wages

Wages in the E&P industry in the Uinta Basin are higher than the average wage and in line with mining wages in general. Of the three NAICS industries related to E&P, the highest wages are paid by the operating companies (Table 10). The average wage paid by companies in the Oil and Gas Extraction industry (NAICS 211) was $84,795 in Uintah County during 2006. The data for Duchesne County is not disclosed, but the average wage should be similar to that paid in Uintah County. The oil service companies (NAICS 213112) pay the lowest wages of the three NAICS industries related to E&P activities. However, they are still noticeably above the average wage for the area.

Wages for the three NAICS industries involved in oil and gas E&P have been rising in recent years, reflecting increased demand for labor in the area related to rising production. Since a low in 2002 the average wage paid by the oil service companies

increased by 44 percent in Uintah County and by 25 percent in Duchesne County. Similarly, the average wage paid by drilling companies rose by 54 percent in Uintah County and by 9 percent in Duchesne County. Wages paid by the operating companies are also increasing, with a 59 percent rise from 2002 to 2006 in Uintah County.

Table 10 Oil and Gas E&P Average Annual Wages in the Uinta Basin, 2001-2006

	NAICS 211 Oil and Gas Extraction	NAICS 213111 Drilling Oil and Gas Wells	NAICS 213112 Support Activities for Oil and Gas Operations
Duchesne County			
2001	ND	$61,423	$44,412
2002	ND	54,949	42,709
2003	ND	49,464	43,903
2004	ND	51,245	43,270
2005	ND	62,037	48,194
2006	ND	59,726	53,585
Uintah County			
2001	$98,933	$46,287	$44,948
2002	53,149	45,776	40,318
2003	61,838	48,404	44,230
2004	66,627	55,208	47,845
2005	75,598	65,041	49,770
2006	84,795	70,704	58,129

ND: Not disclosed to protect individual company data.
Source: BLS, Quarterly Census of Employment and Wages

4 Economic Impacts

While rising energy prices are translating into rising employment and wages in the producing areas, not all of the economic gains are occurring in the oil and gas industry. The total increase in local economic conditions due to oil and gas activity is greater than the direct gain in the industry. This is the "multiplier effect" often referred to in economics and is a result of local spending by the industry for goods and services and spending of wages by the industry's employees. These additional economic benefits are known as the indirect and induced benefits.

In this study, economic impact is defined as the effect on employment and wages in the subject areas. Additional information on economic impact is available in Section 6 and in several listed references.

4.1 Uinta Basin

The Uinta Basin is the center of the oil and gas E&P industry in Utah. As such, the oil and gas industry is a major factor in the area's economy and is responsible for

a major portion of employment in the two counties. Direct employment in the E&P industry accounted for nearly 20 percent of total employment and 35 percent of total wages paid during 2006 (Table 11)[5]. Uintah County is more dependent upon the oil and gas industry for employment than is Duchesne County. Many of the company offices are located in Vernal but they do business in both counties.

Table 11 Direct Employment and Wages in the E&P Industry in the Uinta Basin, 2006

	Duchesne County		Uintah County		Uinta Basin Total	
	Employment	Wages, 1,000	Employment	Wages, 1,000	Employment	Wages, 1,000
Total	6,560	$226,561	13,292	$519,112	19,852	$745,683
E&P Industry, Direct	974	66,904	2,985	192,338	3,959	259,242
E&P Industry, percent of total	14.8	29.5	22.5	37.0	19.9	34.8

Source: BLS, Quarterly Census of Employment and Wages; author's estimates.

In addition to the direct employment, additional jobs and wages due to spending by the industry and employees results in significant economic benefits to the Uinta Basin. Other employment due to spending by the E&P industry is not limited to the mining industry but is distributed throughout different industries. Total employment in the Uinta Basin due to the E&P industry, including direct, indirect, and induced, was estimated at 49.5 percent of total jobs in the area in 2006 (Table 12). When examining employment by industry, the oil and gas industry is shown to have significant effects on in several other industries.

The E&P industry is responsible for large portions of employment in Retail Trade, Transportation and Warehousing, Real Estate and Other Services. The RIMS II Input-Output model used to determine economic impacts calculates employment by industry irrespective of type of ownership, i.e., private or government employment. However, the BLS figures do segregate private and government employment. The employment due to the oil and gas industry given in Table 12 includes some government employment in the various industries, not just the private employment. Two of the listed industries have significant government employment in addition to the private employment shown Table 12. They are Educational Services and Health Care and Social Assistance. The RIMS II model classifies employees in public education under Educational Services, so the total number of persons employed in this industry is much greater than the 42 persons in private employment listed in Table 12. Other industries with significant levels of public employment are Health Care and Social Assistance and, to a lesser extent, Utilities and Arts, Entertainment and Recreation.

[5]Total wages for Oil and Gas Extraction (NAICS 211) were not released by the BLS for Duchesne County. Total wages were estimated by multiplying the estimated employment of 452 (see Footnote 4) by the average wage for the industry in Uintah County of $84,795.

Several industries have no government employment in the Uinta Basin. These industries are Agriculture, Forestry, Fishing and Hunting, Mining, Manufacturing, Wholesale Trade, Professional, Scientific and Technical Services, Management of Companies and Enterprises, and Accommodation and Food Services. Although there are government employees located in the Uinta Basin to regulate the oil and gas industry, these are not considered part of the Mining industry. The state Division of Oil, Gas and Mining has four employees in the area and there are also several dozen BLM employees dedicated to regulating the industry. For purposes of employment classification, these employees are considered to be employed in NAICS-92 Public Administration, which is included in the government employment in Table 12.

Table 12 Employment Due to Oil and Gas E&P in the Uinta Basin, 2006

	Uinta Basin Total Employment	Total Employment Due to Oil and Gas E&P	Oil and Gas E&P Employment, percent of total
Private Employment			
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	114	14	12.2
Mining (NAICS 21)	4,229	4,020	95.1
Utilities (NAICS 22)	178	33	18.6
Construction (NAICS 23)	1,479	598	40.4
Manufacturing (NAICS 31-32)	375	185	49.3
Wholesale Trade (NAICS 42)	661	145	22.0
Retail Trade (NAICS 44-45)	2,223	1,558	70.1
Transportation and Warehousing (NAICS 48-49)	1,240	875	70.6
Information (NAICS 51)	315	59	18.8
Finance and Insurance (NAICS 52)	299	142	47.4
Real Estate (NAICS 53)	403	307	76.3
Professional, Scientific and Technical Services (NAICS 54)	418	229	54.8
Management of Companies and Enterprises (NAICS 55)	ND	16	NA
Administrative and Support (NAICS 56)	ND	80	NA
Educational Services (NAICS 61)	42	58	138.7
Health Care (NAICS 62)	1,277	626	49.0
Arts, Entertainment and Recreation (NAICS 71)	ND	49	NA
Accommodation and Food Services (NAICS 72)	ND	427	NA
Other Services (NAICS 81)	501	378	75.5
Households	NA	36	NA
Government Employment	4,293	NA	NA
All Employment	19,582	9,835	49.5

Note: There is significant government employment in both Educational Services and Health Care and Social Assistance in the Uinta Basin. The employment calculated using the RIMS II model, which includes government employment, can exceed the private employment in these industries.
ND: Nondisclosable. Data are included in the totals. NA: Not Applicable.
Source: BLS, Quarterly Census of Employment and Wages; author's calculations.

Oil and gas E&P accounts for over 60 percent of all wages paid in the Uinta Basin (Table 13). The industry is responsible for a higher percentage of wages than employment due to oil and gas E&P paying above average wages. In addition to

Mining, industries with a significant portion of wages due to oil and gas extraction include Manufacturing, Retail Trade, Finance and Insurance, Professional, Scientific and Technical Services, and Other Services. As with employment, the amount of wages reported in Educational Services is greater than the wages paid by private employers in that industry. This is due to public schools accounting for a major portion of the employment in the Educational Services. Public schools are not private employment, but government employment, and so their wages are categorized separately in the BLS figures.

Table 13 Wages Due to Oil and Gas E&P in the Uinta Basin, 2006

	Uinta Basin Total Wages, $1,000	Total Wages Due to Oil and Gas E&P, $1,000	Oil and Gas E&P Wages, percent of total
Private Employment			
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	2,027	243	12.0
Mining (NAICS 21)	269,605	263,111	97.6
Utilities (NAICS 22)	12,473	2,959	23.7
Construction (NAICS 23)	49,123	24,547	50.0
Manufacturing (NAICS 31-32)	10,808	7,897	73.1
Wholesale Trade (NAICS 42)	30,033	6,886	22.9
Retail Trade (NAICS 44-45)	45,603	35,053	76.9
Transportation and Warehousing (NAICS 48-49)	66,650	34,377	51.6
Information (NAICS 51)	9,457	3,257	34.4
Finance and Insurance (NAICS 52)	9,058	5,683	62.7
Real Estate (NAICS 53)	20,894	11,872	56.8
Professional, Scientific and Technical Services (NAICS 54)	15,049	11,553	76.8
Management of Companies and Enterprises (NAICS 55)	ND	852	NA
Administrative and Support (NAICS 56)	ND	1,836	NA
Educational Services (NAICS 61)	466	1,195	256.5
Health Care (NAICS 62)	33,508	19,975	59.6
Arts, Entertainment and Recreation (NAICS 71)	ND	892	NA
Accommodation and Food Services (NAICS 72)	ND	5,830	NA
Other Services (NAICS 81)	13,690	9,651	70.5
Households	NA	578	NA
Government Employment	131,529	NA	NA
All Employment	745,683	448,246	60.1

Note: There is significant government employment in both Educational Services and Health Care and Social Assistance in the Uinta Basin. The wages calculated using the RIMS II model, which includes government wages, can exceed the private wages in these industries.
ND: Not disclosed, NA: Not Applicable.
Source: BLS, Quarterly Census of Employment and Wages; author's calculations.

5 Fiscal Impacts

The oil and gas industry also has fiscal impacts on the local areas. Fiscal impacts refer to impacts on government finances and tax collections. The oil and gas industry is subject to the tax laws common to all business. There are also impacts unique to the industry. Production on federal land is subject to a royalty payment

under the Mineral Lands Leasing Act of 1920. This royalty is paid to the Minerals Management Service, an agency within the U.S. Department of Interior. A portion of the federal mineral royalties is returned to the state of origin. Generally, one-half of federal mineral royalties are returned to the states of origin. Royalties from production on Indian lands are returned to the appropriate tribe, not to the state government. Since a large portion of the crude oil production in Utah occurs on Indian lands, especially in Duchesne and San Juan Counties, the amount of crude oil royalty returned to the state government is significantly less than one-half of the amount paid to the Minerals Management Service. The states have full discretion as to the distribution of federal mineral royalties as long as priority is given to areas with economic and/or social impacts from leasing activities. The Minerals Management Service does not release federal mineral royalty data at the county level, but statewide data are available.

Federal mineral royalties due to oil and gas production in Utah have dramatically increased in recent years, to $299 million in 2006, a 228 percent rise from $91 million in 2001 (Table 14). Oil and gas production accounted for 91.3 percent of the royalties paid for mineral production on federal land in Utah during 2006. There was also an additional $103 million paid in bonus and rents on federal mineral leases. These are fees associated with awarding federal mineral leases and maintaining the leases until production is initiated. Table 14 includes royalties due to oil and gas production, but does not include bonus or rent payments for federal oil and gas leases. Of the nearly $300 million paid in federal mineral royalties by the oil and gas industry in Utah, $109 million was returned to the state government.

Table 14 Federal Mineral Royalty Payments and Disbursements for Utah, 2001-2006

	Oil		Natural Gas		Total	
	Royalties	Disbursements	Royalties	Disbursements	Royalties	Disbursements
2001	$32,799,794	$4,392,667	$58,553,527	$26,210,621	$91,353,321	$30,603,288
2002	26,028,911	3,493,794	37,653,050	11,921,373	63,681,961	15,415,167
2003	37,462,357	5,575,810	55,369,036	26,040,706	92,831,293	31,616,515
2004	45,743,590	7,235,629	87,075,857	38,228,494	132,819,447	45,464,122
2005	66,900,212	10,405,687	118,132,687	53,647,636	185,032,900	64,053,323
2006	106,457,298	21,866,066	193,416,183	87,551,457	299,873,481	109,417,522

Note: Years are federal fiscal years. Natural gas includes natural gas liquids from gas processing plants.
Source: Minerals Management Service

In Utah, federal mineral royalties are distributed to several different accounts according to state law (Table 15). The largest recipients of federal mineral royalties in Utah are the Permanent Community Impact Fund and the Department of Transportation. The funds distributed to the Department of Transportation are then distributed to local governments to fund local highways in proportion to the amount of mineral lease money generated by each county. The Permanent Community

Impact Fund makes loans and grants to state agencies and subdivisions of state government impacted by mineral resource development. Unlike the funds administered by the Department of Transportation, which are distributed in proportion to royalties generated in the county, the Permanent Community Impact Fund is distributed by a state-appointed board in response to proposals submitted by local governments. Therefore, the distribution of funds by the Permanent Community Impact Fund to the various counties may vary from the amount of royalty generated. The payments in lieu of taxes cited in Table 15 are not the payments in lieu of taxes made by the federal government for federal land in Utah but are payments made by the state government to counties for lands controlled by the School and Institutional Trust Lands Administration, state Division of Parks and Recreation and the state Division of Wildlife Resources.

Table 15 Distribution of Federal Mineral Royalties in Utah

	Percent
Permanent Community Impact Fund	32.50
State Board of Education	2.25
Utah Geological Survey	2.25
Water Research Laboratory	2.25
Department of Transportation	40.00
Department of Community and Culture	5.00
Payments in Lieu of Taxes	52 cents per acre
Permanent Community Impact Fund	Remainder

Note: The amount paid for Payments in Lieu of Taxes has been adjusted annually since 1994 according to the Consumer Price Index.
Source: Utah State Code, Title 59, Chapter 21.

The School and Institutional Trust Lands Administration (SITLA) controls mineral rights on approximately 4.4 million acres in Utah. These lands area held trust for the public schools in Utah and 11 other beneficiaries and were established at statehood and through land exchanges with the federal government. During 2006, royalties paid for oil and gas extraction on SITLA lands were $82.7 million. This was 51.0 percent of total SITLA revenue for 2006. These funds are not returned to the county of origin, but are placed in a permanent fund managed by the state treasurer on behalf of the public schools as a beneficiary or distributed to the appropriate beneficiary as mandated. Dividends and interest from the Public School Fund are distributed annually to all Utah public schools based on an established formula.

In addition to royalties, there is an oil and gas severance tax in Utah and a oil and gas conservation fee which are levied on all production in the state. The Oil and Gas Severance Tax in placed in the state general fund and the tax rate varies from 3 to 5 percent of the sales price. The Oil and Gas Conservation Fee funds the state Division of Oil, Gas and Mining. The fee is imposed at a rate of 0.2 percent of the value of production.

Both the Oil and Gas Severance Tax and the Oil and Gas Conservation Fee have significantly increased in recent years (Table 16). The Oil and Gas Severance Tax increased by 82 percent from 2001 to 2006 while the Oil and Gas Conservation Fee increased by 102 percent. The drop from 2001 to 2002 was due to the wellhead price of natural gas produced in Utah dropping from $3.52 per MCF in 2001 to $1.99 per MCF in 2002. These data reflect statewide oil and gas operations and are not specific to the Uinta Basin.

Table 16 State Tax Collections Related to Oil and Gas Production, 2001-2006

	Oil and Gas Severance Tax	Oil and Gas Conservation Fee
2001	$39,357,798	$2,748,318
2002	18,893,082	1,710,219
2003	26,745,279	1,943,755
2004	36,659,808	2,696,250
2005	53,484,320	3,631,963
2006	71,513,869	5,560,449

Note: Years are state fiscal years.
Source: Utah State Tax Commission

5.1 Uinta Basin

The largest direct fiscal impacts on the Uinta Basin due to oil and gas operations in the area are property taxes paid by the operating companies and federal mineral royalties distributed to the local governments by the Utah Department of Transportation. The Utah State Tax Commission centrally assesses oil and gas properties using a net present value approach applied to future production. The local county treasurers bill and collect the taxes. Property taxes are levied by numerous units of local government, including county and city governments, school districts, and special service districts.

Property taxes paid on oil and gas properties are a significant portion of total property taxes in the Uinta Basin (Table 16). During 2006, the oil and gas industry paid nearly 40 percent of total property taxes in the two Uinta Basin counties. Table 16 refers to all property taxes paid to various government entities in the two counties, not just the county governments. As prices of crude oil and natural gas have increased in recent years, the net present value of future production has increased. This, coupled with rising production, has resulted in the amount of property taxes paid by the oil and gas industry in the Uinta Basin increasing by nearly four times over the past 10 years, not adjusting for inflation. Oil and gas property taxes have been rising faster in Uintah County than in Duchesne County, reflecting rising natural gas production in the county. Property taxes paid on oil and gas production increased by 440 percent in Uintah County from 1997 to 2006, and by 122 percent in Duchesne County. Given the rising production and expected

continuation of current energy prices, the property taxes paid by the oil and gas production industry in the Uinta Basin should continue to rise into the future.

Table 17 Oil and Gas Property Tax Payments in the Uinta Basin, 1997-2006

	Duchesne County		Uintah County		Uinta Basin Total	
	Oil & Gas Property Tax	Percent of Total Property Tax	Oil & Gas Property Tax	Percent of Total Property Tax	Oil & Gas Property Tax	Percent of Total Property Tax
1997	$2,412,970	27.2	$2,389,667	15.7	$4,802,637	20.0
1998	2,353,888	27.9	2,858,447	18.1	5,212,335	21.5
1999	1,561,466	21.3	2,309,639	15.6	3,871,105	17.5
2000	1,749,689	19.7	2,579,728	16.9	4,329,417	17.9
2001	2,221,385	23.1	3,449,316	20.8	5,670,701	21.7
2002	1,773,249	18.4	4,054,227	22.5	5,827,476	21.1
2003	1,739,101	17.2	4,276,125	21.9	6,015,226	20.3
2004	2,407,040	21.8	5,985,003	25.3	8,392,043	24.2
2005	3,640,044	27.8	8,241,224	33.0	11,881,268	31.2
2006	5,358,661	33.9	12,895,362	41.1	18,254,024	38.7

Source: Utah State Tax Commission, Property Tax Division Annual Reports

The funds generated through federal mineral royalties that are returned to the Uinta Basin through the Utah Department of Transportation are also a significant source of revenue for the local governments. These funds actually exceed the amount of property tax paid by the oil and gas industry. During 2006, Duchesne and Uintah Counties collectively received $30 million dollars in federal mineral royalties returned to them by the Department of Transportation. This was a 296 percent increase over the amount returned in 2001.

Table 18 Federal Mineral Royalties Returned by UDOT to the Uinta Basin, 2001-2006

	Duchesne County	Uintah County	Uinta Basin Total
2001	$789,854	$6,856,410	$7,646,264
2002	718,112	3,031,081	3,749,193
2003	678,705	6,893,486	7,572,192
2004	931,428	11,767,611	12,699,038
2005	1,903,292	16,704,532	18,607,824
2006	2,750,055	27,500,128	30,250,182

Note: Years are state fiscal years.
Source: Utah Department of Transportation

Table 18 includes data on all royalties from federal mineral leases in Utah, not just oil and gas operations. Although there are some other federal mineral leases in the Uinta Basin, notably gilsonite, by far the majority of royalties are due to oil and gas production.

Royalties paid to SITLA due to production of oil and gas in the Uinta Basin rose significantly from 2005 to 2006 (Table 18). In 2005, oil and gas production in the Uinta Basin resulted in $23 million in SITLA royalties. Rising production and prices resulted in a 54 percent increase in 2006, with over $34 million in SITLA royalties paid.

Table 19 Royalties Paid for Production on SITLA Lands in the Uinta Basin, 2005-2006

	Duchesne County	Uintah County	Uinta Basin Total
2005	$2,976,668	$19,990,367	$22,967,035
2006	2,686,706	32,720,101	35,407,575

Note: Years are state fiscal years.
Source: School and Institutional Trust Lands Administration

State personal income taxes as a result of oil and gas E&P activities in the Uinta Basin is estimated at just over $18 million for 2006 (Table 20).

Table 20 Personal State Income Taxes due to Oil and Gas E&P in the Uinta Basin

	Uinta Basin Total
Total Wages due to Oil and Gas E&P, $1,000	$448,246
Personal State Income Taxes, $1,000	18,026

Source: Author's Calculations. Details of the estimation are in Section 6.

6 Technical Notes and Methodology

Industries are classified by economists according to the North American Industry Classification System (NAICS), which was developed by the Office of Management and Budget in cooperation with other federal agencies and foreign governments (Office of Management and Budget, 2002). The NAICS codes replaced the Standard Industrial Classification (SIC) Codes that had been used since the 1930s. This change was prompted by structural changes in the U.S. economy, with the services sector becoming a much larger portion of the economy and more complex than when the SIC codes were developed. In the switch, the 10 major industrial sectors under the SIC codes were replaced with 20 major sectors under the NAICS Codes. Many of the industrial sectors under the SIC codes were split among two or more of the redefined sectors under the NAICS codes, making comparisons difficult. The NAICS codes better explain the structure of the current economy but make time series data difficult to compile.

Under the NAICS system, companies are classified under 20 major industrial categories and the categories are further subdivided as needed. There are three classifications directed related to the oil and gas exploration and production industry.

These are NAICS 211 – Oil and Gas Extraction, NAICS 213111 – Drilling Oil and Gas Wells, and NAICS 213112 – Support Activities for Oil and Gas Operations. These three classifications cover the operating companies, drilling companies, and service companies, respectively. For this study, we are considering them collectively as the oil and gas E&P industry.

Other local businesses and industries benefit from E&P activities. Examples of these are seismic companies, regulatory and environmental consulting firms, consulting geologists, trenching and dirtwork, and utilities providing electricity. Other benefits accrue to local hotels and restaurants as a result of spending by visiting workers. These types of effects are referred to as the indirect and induced impacts. The indirect and induced impacts can be calculated from the value of transactions between the E&P industry and these other businesses using input-output economic models.

6.1 NAICS Codes Related to Oil and Natural Gas Production

For this study, we are considering the following three NAICS classifications collectively as the oil and gas E&P industry. The definitions listed are those developed by the Office of Management and Budget.

NAICS 211 – Oil and Gas Extraction Industries in the Oil and Gas Extraction subsector operate and/or develop oil and gas field properties. Such activities may include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operation of separators, emulsion breakers, desilting equipment and field gathering lines for crude petroleum and natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. The subsector includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids.

Establishments in this subsector include those that operate oil and gas wells on their own account and for others on a contract or fee basis. Establishments primarily engaged in providing support services, on a fee or contract basis, required for the drilling or operation of oil and gas wells (except geophysical surveying and mapping, mine site preparation, and construction of oil/gas pipelines) are classified in Subsector 213, Support Activities for Mining.

NAICS 213111 – Drilling Oil and Gas Wells This U.S. industry comprises establishments primarily engaged in drilling oil and gas wells for others on a contract or fee basis. This industry includes contractors that specialize in spudding in, drilling in, redrilling, and directional drilling.

NAICS 213112 – Support Activities for Oil and Gas Operations This U.S. industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations (except site preparation and related activities). Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars; well surveying; running, cutting, and pulling casings, tubes, and rods; cementing wells, shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells.

6.2 Economic Impact Modeling

Economic impacts on an economy arise from exogenous sources or activities that result in new funds being injected into the economy. Examples include are products that are exported and new construction funding. It is important for outside funds to be injected into a regional economy for economic impacts to occur. If an activity is financed by funds from inside a regional economy, known as residentiary spending, then the funds are diverted from one industrial sector to another and there is no net multiplier effect or economic impact. Crude oil and natural gas from the producing areas in Utah are exported to refineries and markets in other portions of the country. Exporting oil and gas results in an inflow of funds which creates a positive economic impact on the area.

In this study, economic impact is used to mean the impact of oil and gas E&P activities on the amount of employment and wages paid in the various producing regions in Utah. Many similar studies present the total economic output of an activity as the economic impact; this is the sum of all transactions in a supply chain and can be much larger than the value of the final good or service provided to the end consumer. Similarly, many authors apply economic output multipliers to all spending related to an activity, with no distinction between export-based and residentiary spending. The result is often termed "economic contribution" and presented as economic impact. As with all economic output calculations, the result is much larger than the value of the final product delivered to an end consumer.

The oil and gas exploration and production industry has a direct impact on the local economy through employment and wages paid. In addition, there are additional indirect and induced impacts. Indirect impacts result from local spending by the E&P industry and induced impacts arise from employees of the E&P industry spending their earnings.

Examples of indirect impacts are employment and wages at seismic companies, regulatory and environmental consulting firms, consulting geologists, trenching and dirtwork, and utilities providing electricity. Other benefits accrue to local hotels and restaurants as a result of spending by visiting workers. The indirect and induced

impacts can be calculated from the value of transactions between the E&P industry and these other businesses.

The RIMS II Input-Output model developed by the Bureau of Economic Analysis was used to determine the indirect and induced economic impacts of the oil and gas exploration and production industry in the Uinta Basin. The RIMS II model is based on an accounting framework called an input-output table. From each industry, an input-output table shows the industrial distribution of inputs purchased and outputs sold. The Bureau of Economic Analysis has developed a national input-output table (Bureau of Economic Analysis, 1997). To develop region-specific input-output tables, the national input-output table is modified using regional economic data. The producer portion of the input-output table is modified using location quotients at the six-digit NAICS level based on personal income data for service-producing industries and wage and salary data for nonservice-producing industries. Household data is modified to account for commuting across regional boundaries and savings and taxes. Once the national input-output table is regionalized, the multipliers are estimated through use of matrix algebra. The RIMS II model estimates the employment and wage impacts by major NAICS industry.

Data on spending by the E&P industry in the Uinta Basin was obtained via a survey of operating, drilling and service companies operating in the area. Personnel with the Bureau of Economic and Business Research at the University of Utah cooperated with the Independent Petroleum Association of the Mountain States (IPAMS) to developed survey forms with input from several representatives of the petroleum industry. IPAMS distributed the survey forms to operating, drilling and service companies operating in the Uinta Basin and the forms were returned to the Bureau of Economic and Business Research. Data from returned survey forms was totaled by spending category. Using data on total production of oil and gas, number of wells spudded and employment reported by government agencies, the total spending reported by responding companies was expanded to total industry spending in the region. The multipliers from the RIMS II model were then applied to the total spending by category to determine the indirect and induced employment and wages.

State income tax impacts were estimated by calculating the ratio of the Utah income tax liability for Duchesne and Uintah Counties to the total of the total earnings by place of work for the two counties as determined by the Bureau of Economic Analysis. This average of this ratio for the years 2003 through 2005 was 4.02 percent. This ratio was then applied to the total estimated earnings due to oil and gas E&P in the Uinta Basin of $448,246 thousand to estimate the state personal income tax.

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